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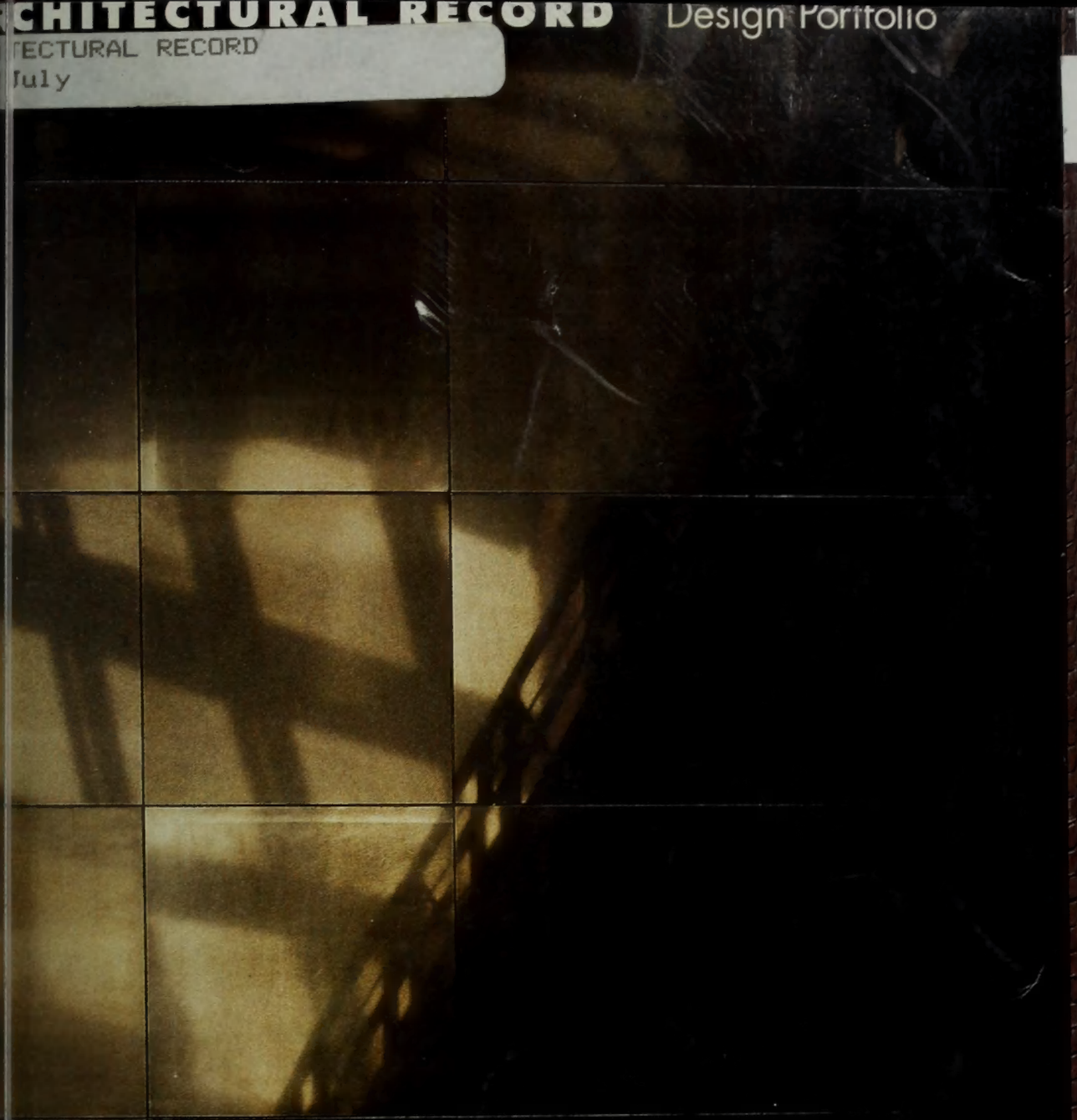
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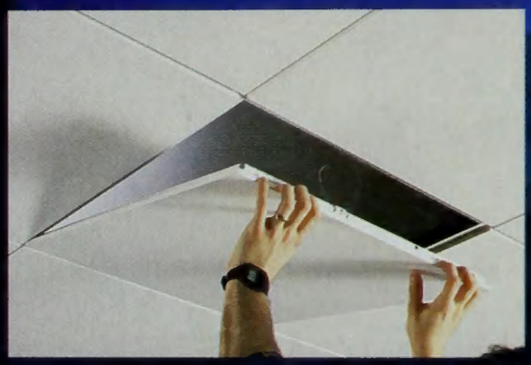
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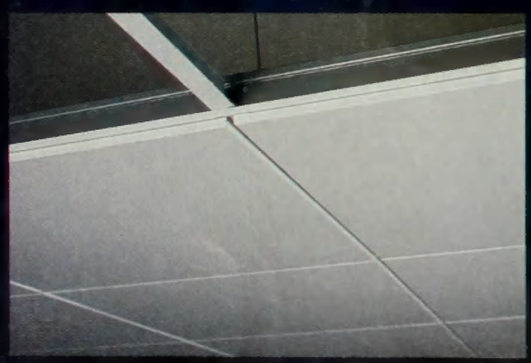


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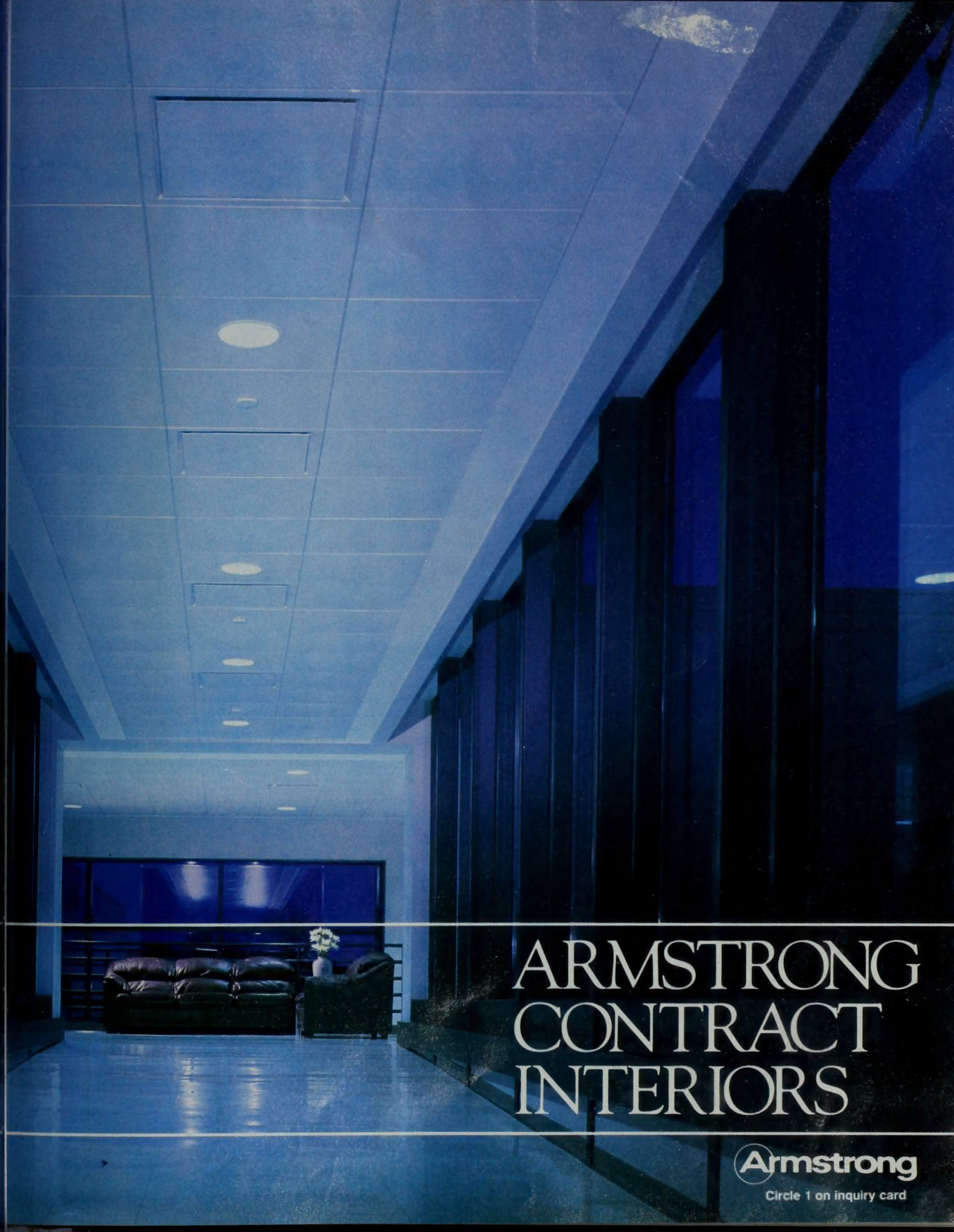
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Staff Architect

I enjoyed "Private Practice vs. The Staff Architect" [RECORD, May 1993, page 9]. I agree that it is time for reconciliation. However, the problems are not all economic. They also stem from the attitudes that some private practitioners express towards public sector and corporate architects. Having spent a high percentage of my career in the public sector, I occasionally experienced negative attitudes from my uninformed private sector counterparts. My very first experience with such attitudes came when I first applied for AIA membership in 1964. During the personal interview I was asked, "Why do you want to become a corporate member of AIA—you are a government architect?"

Mortimer M. Marshall Jr. FAIA, FCSI
Herndon, Virginia

Many of the liaison personnel we deal with are not architects or designers but rather "managers," who in some cases have been trained to expedite projects and come in below budget. Many times these budgets are established without the input of the architect, whose in-house "influence" as you describe it is mostly nonexistent. In this economic climate, it's better to keep a low profile than risk being "right-sized" out of a job.

Establishing a fee is accomplished by sending out RFP's to 12-20 firms of all sizes and expertise and picking the low bidder. The contracts proposed are usually not standard AIA but all-inclusive documents that are "take it or leave it."

Furthermore, to worry about stiffer competition due to layoffs is narrow-minded. Perhaps there is too much competition already and a natural weeding-out process would strengthen the industry. We must organize and educate our profession before the private sector disappears and only corporate departments are left.

Alfonso S. D'Elia, AIA
New York City

As one who has worked in both corporate and private environments, I can tell you without equivocation that achieving a high standard of design is up to the individual. If dedication is lacking in the architect, both sides lose. My priorities have always been, in order of ranking, 1. the project, 2. my job.

E. "Manny" Abraben, AIA
Cleveland, Ohio

Overlooking the Poor?

We are outraged at your April 1993 article [RECORD, page 29] reviewing the Yale Conference on Housing. Contrary to what you wrote, the Conference explicitly addressed the poor and issues of affordable housing. It sought to break from the architecture-centric view of the world, which has ignored the myriad social, economic and political forces/players involved in providing affordable housing. Your review effectively overlooked and silenced the voices of the Conference speakers, who are committed to providing housing and support programs and who are rightfully outraged.

Louise Harpman and
Evan Supcoff
New Haven, Connecticut

Talk won't build affordable housing if the money dries up. When financing is combined with political grit and social savvy, fine results are possible [see RECORD, July 1992, pages 70 ff.].—Ed.

Through August 29

"Chicago Architecture and Design, 1923-1993: Reconfiguration of an American Metropolis," The Art Institute of Chicago, Contact Eileen Harakal or Mary Minch at 312/443-7263.

Through September 6

"The Art of Design2: An Exhibition of American Design," Haggerty Museum of Art at Marquette University, N. 13th and W. Clybourn Sts., Milwaukee, Wis. Contact Obie Yadgar, 414/288-7553.

Through September 30

The Municipal Art Society's walking tours of New York City. The fee is $10. For more information contact Suzanne Ford/The Zeisler Group at 212/807-6480.

September 1-4

38th Annual Convention of the National Association of Women in Construction at the Loews Anatole Hotel, Dallas, Texas. Write to the National Association of Women in Construction (NAWIC), 327 So. Adams, Ft. Worth, Tex., 76104. Attention: Paula D. Clements.

Competitions

The Contemporary Arts Center/AIA Cincinnati sponsors the National Architecture Competition to Design the Dream House of the next millennium. Deadline for registration has been extended to July 15 and submissions are due September 1. Write: Dream House Competition, AIA Cincinnati, Longworth Hall Design Center, 700 W. Pete Rose Way, Cincinnati, Ohio 45203 or call 513/421-4661.

1993 Commercial Architecture Stucco Awards. Competition open to architects and students alike. The deadline for this competition is August 1. Write: The Stucco Awards, 1644 South Clementine St., Anaheim, Calif. 92802 or call 714/778-5336. ■

ARCHITECTURAL RECORD

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003-858X/93) July 1993, Vol. 181, No. 7. Title ® reg. in U. S. Patent Office, copyright ©1993 by McGraw-Hill, Inc. All rights reserved. Indexed in Reader's Guide to Periodical Literature, Art Index, Applied Science and Technology Index, Engineering Index, The Architectural Index, the Architectural Periodicals Index, the Avery Index to Architectural Periodicals, and the Construction Index.

Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

Executive, Editorial, Circulation and Advertising Offices: 1221 Avenue of the Americas, New York, NY 10020.

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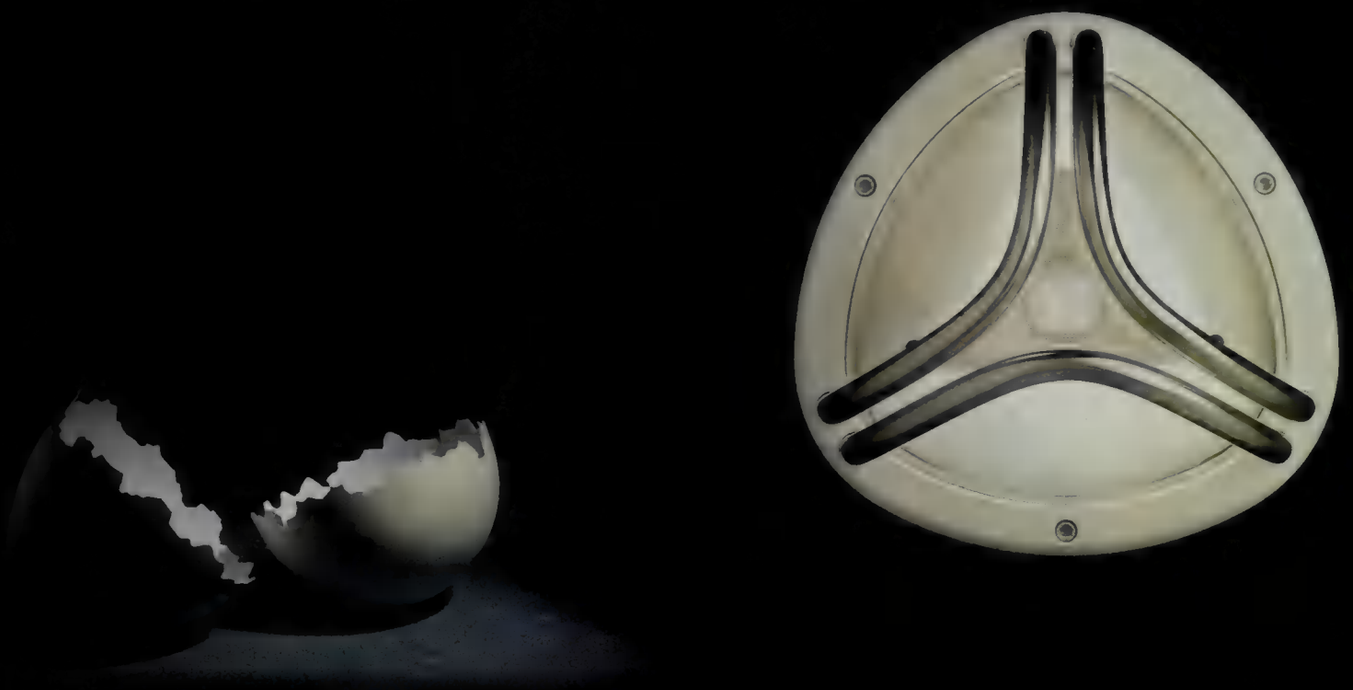
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ARCHITECTURAL RECORD (ISSN0003-858X/93) published monthly by McGraw-Hill, Inc. Second-class postage paid at New York, NY and additional mailing offices. Postage paid at Montreal, Quebec, Canada.Canada Post International Publications Mail Product Sales Agreement No. 246565. Registered for GST as McGraw-Hill, Inc. GST Number R123075673

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An early conceptual sketch by Frank Gehry of the Center for the Visual Arts at the University of Toledo.

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Cover: *United States Holocaust Memorial Museum, Washington, D. C. Pei Cobb Freed & Partners, Architect; Notter Finegold & Alexander, Associate Architect ©Jeff Goldberg/Esto photo*

Next month:

Building Types Study 708 Educational Facilities
An essay links rising demand for schools with enrollment diversity, novel financing, changes in philosophy, and new technology, offering fresh challenges to architects.

Also in August

Membrane structures. ADA and the sight- and hearing-impaired. Computer report from A/E/C Systems.

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This past May a Fortune 200 company advertised for a staff architect. One qualification was that the candidate be interested in "the strategic use of design to accomplish both business goals and design excellence."

Notice which came first—*business goals.* Typically, architects and designers learn in school that their task in life is to beautify the built environment, and, as a poor second, to make sure the building stands up, the roof doesn't leak, and that it is finished on time and on budget. And, as a poor third, to recognize that the client has a more than passing interest in making money.

But these are different times. Many corporations, including McGraw-Hill (which owns RECORD), are beginning to see that part of their basic mission is not only to make money for their owners/stockholders, but above all to see that their *clients* and *customers* make money. There's an incontestable logic about this: you can't make money if your client doesn't.

There's other evidence that this mindset is picking up steam. Last year I took a workshop in upstate New York organized by a group known as the Corporate Design Foundation. Attending were about equal numbers of designers and B-school faculty types. A strong pitch was made to step up the meager curriculum fare that most business schools feed about design, and to stress that design is not the icing on the cake but essential dough. Good design can increase sales and market share, improve human productivity, open markets, reduce costs, and preserve the environment.

Our sister publication *Business Week* last month came out with its annual design awards issue under the heading "Hot Products; Smart Design is the Common Thread." Showing an array of computers, cars, razors, radios for toddlers, sneakers, wrenches, prototype furniture showrooms, and furniture, the editors asserted that "leveraging the power of design is one of the hottest strategic games being played today." And Chicago architect Jack Train is one of a growing group that calls for facility decisions to be made as business decisions.

Recession or no recession, the 1990s are going to be lean years for architects who fail to recognize and respect their clients' basic raison d'être. For even those rare clients who consistently hire high-profile architects do so, after all is said and done, not so much as ego trips, but because it helps move the merchandise.

But what about public clients? They too are in the business to sell, if not products, then certainly services. Here too the architect's business is to make the *client* look good, whether it's an innovative school that raises graduates' SAT scores; a voluntary hospital that draws patients away from a grim facility across town; or a museum that builds membership and giftshop sales.

So, architects, when you next recast your brochure, or respond to that RFP, or face your next selection committee, remember that unless your parti helps make money for the stockholders, or improves the county commissioner's image with the voters, or the museum director's with the big donors, it won't matter much that your walls are covered with design awards from your peers. Nor is this a recipe for clients dictating design. It merely recognizes that one measure of good architecture is a thriving client. *Stephen A. Kliment*

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JoAnne McDowell On Reuse



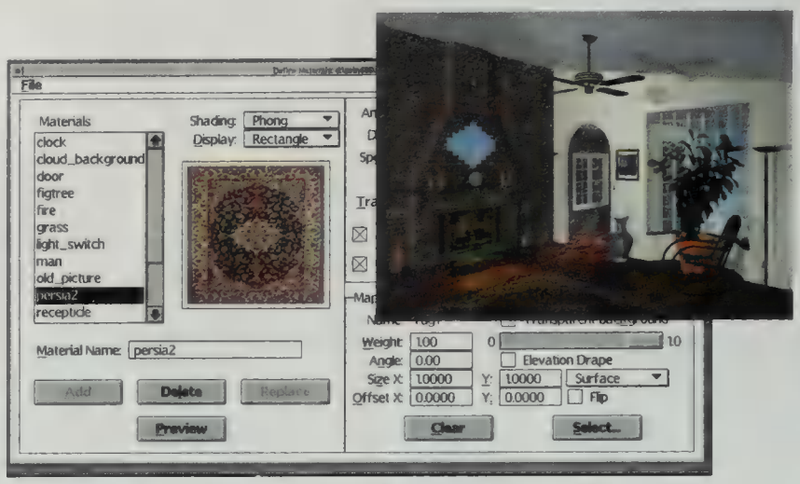
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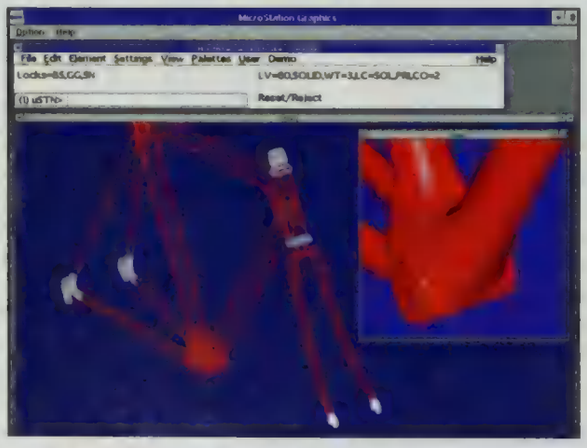


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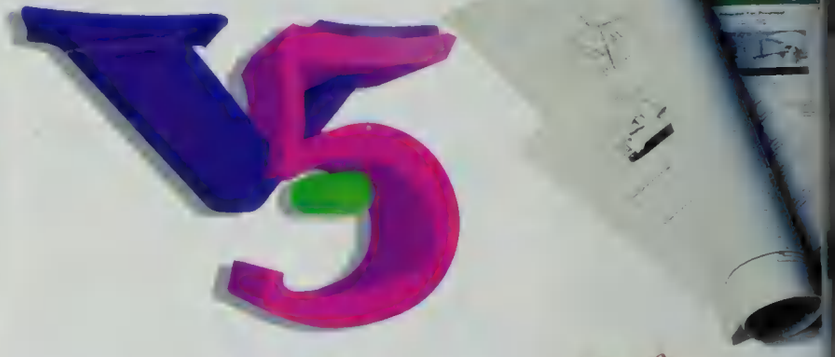
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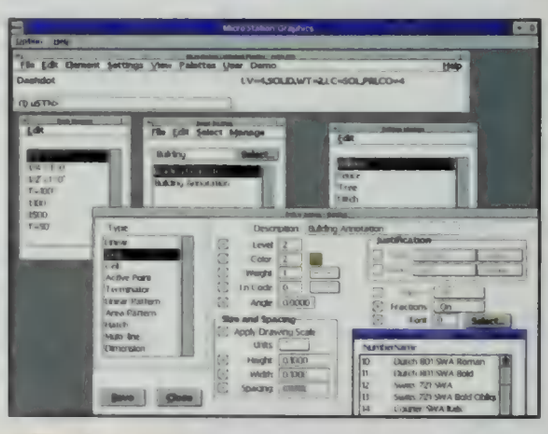
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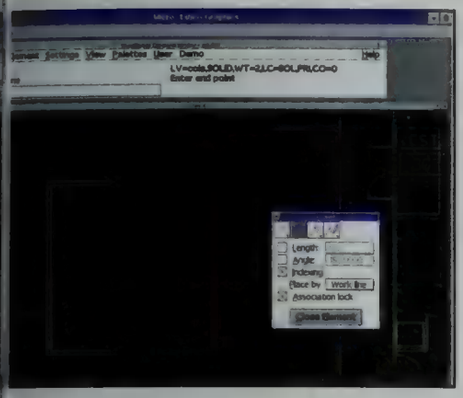




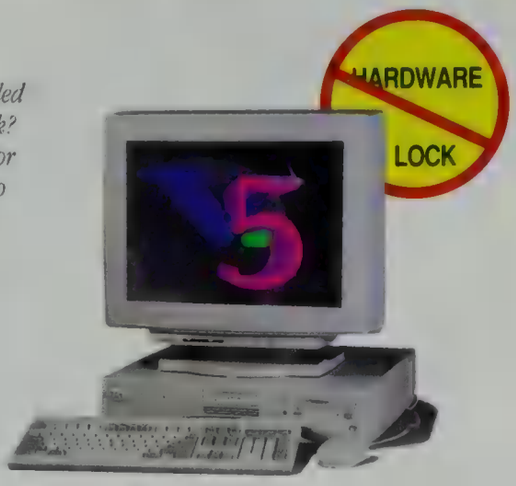
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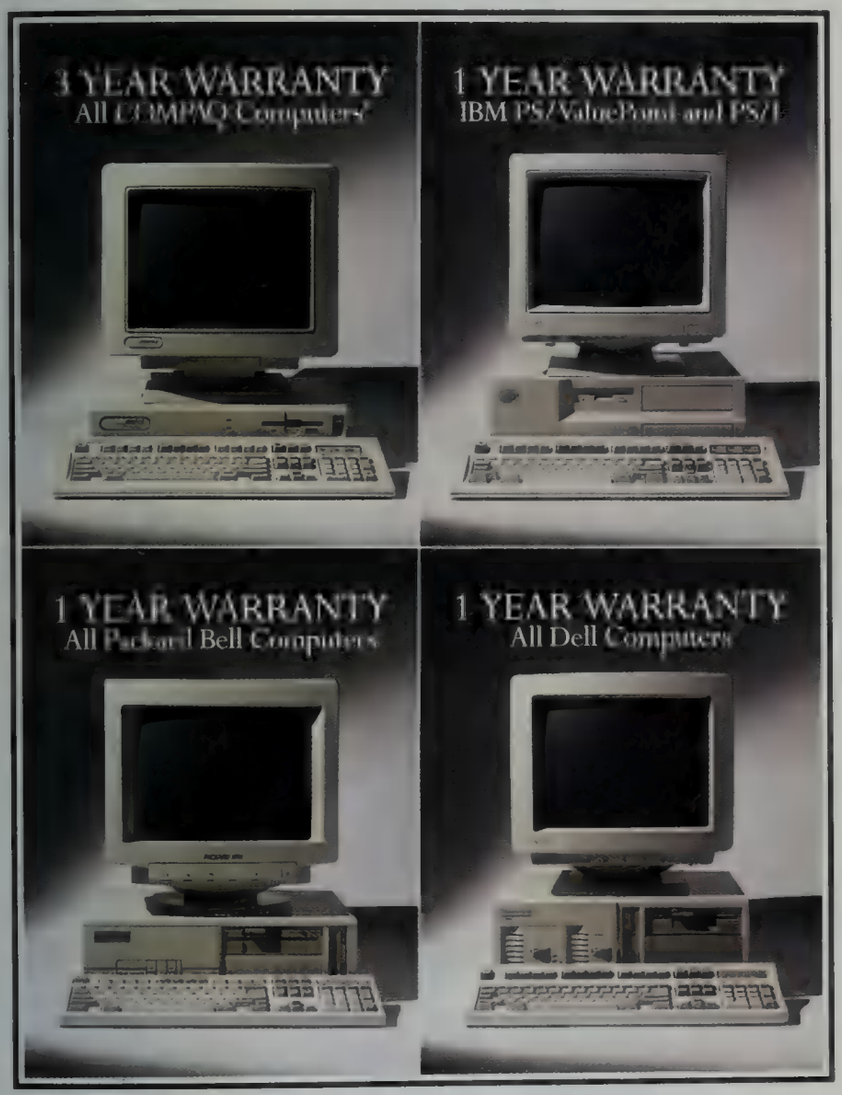
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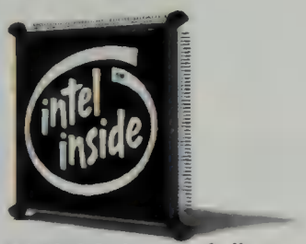
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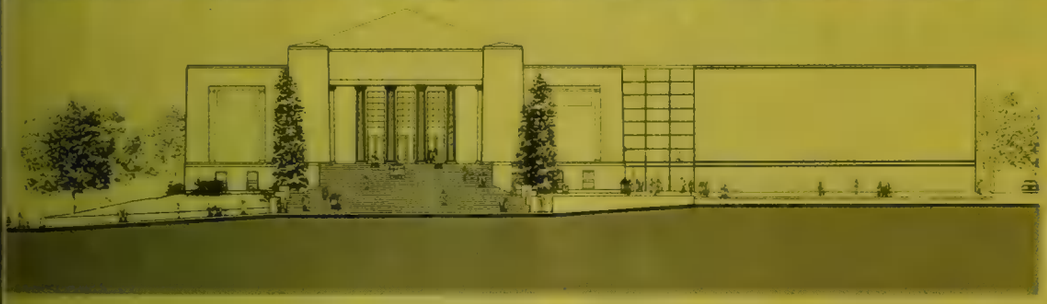
Jewish Museum Addition: Roche Achieves Seamless Link



Most people walking along Manhattan's Fifth Avenue at 92nd Street have no idea the Jewish Museum just completed a 30,000-square-foot addition that doubles the institution's gallery space, provides new rooms for educational programs, and includes a new 232-seat auditorium. In restoring and extending the Fifth Avenue facade of the 1908 Warburg Mansion, the French Gothic chateau that has housed the Museum since 1947, Kevin Roche John Dinkeloo and Associates created a seamless work that blurs all distinctions between old and new. Although the addition's facade doesn't duplicate that of the original building, it was designed to seem as "if the original architect, C. P. H. Gilbert, were asked to expand the Mansion," says Roche. Period moldings and other details are incorporated in some rooms, including the new auditorium, but new galleries are designed as neutral spaces. Defending his use of an older vocabulary, Roche says that since the addition is smaller than the original and the Warburg Mansion was so closely identified with the Museum, it was best to defer to the old. *C. A. P.*

Omaha

Foster's First Foray into U. S. Heartland



After designing buildings and winning prizes all over the world, Yale architecture school alumnus Sir Norman Foster is working on his first U. S. commission: the renovation and extension of Omaha's Joslyn Art Museum, scheduled to open late in 1994.



Richard Davies

A 30-ft-wide, 210-ft-long glass atrium will link the the 1931 original to a two-level addition accomodating galleries for traveling exhibits as well as for the Joslyn's 20th-century painting and sculpture collection, technical and storage facilities, offices, shipping and storage areas, public restrooms and a kitchen. The atrium permits the enclosed original wall of the museum to remain intact and in view, and creates space for a restaurant and performing arts events. Site reorganization provides improved open space for outdoor events, returns the formal main entrance to its original prominence, and permits a certain processional dignity to the handicapped-accessible entrance through the atrium. Sir Norman Foster and Partners will be working on the $15.95-million project with the local architectural and engineering firm of Henningson Durham & Richardson. ■

New York City

Energy Is On View at JFK

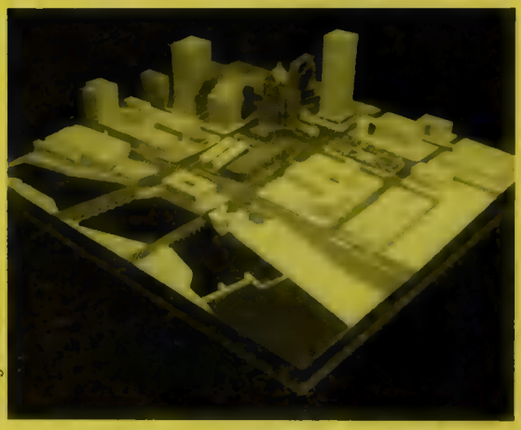


The most visible site at JFK International Airport contains a heating and refrigeration plant undergoing expansion into an efficient cogeneration plant that recycles its own waste energy to supply electricity and water to heat and cool the terminals. The Eggers Group chose to visually reinforce the highly engineered equipment by painting it in distinctive colors and displaying it behind glass walls, some vertical, some sloped. Massive outdoor equipment will be visible through transparent architectural screens of painted steel pipe and tube. ■

Rochester, N. Y.

Clear Vision for Upstate Downtown

Bausch & Lomb's world headquarters by Fox & Fowle and Handler/Grosso slopes from 20 stories, where it encounters tall office buildings, to a two-story winter garden facing Olmsted's Washington Square Park in Rochester. The plan reconfigures an adjoining street to create a traffic circle leading to the park, which is surrounded by older low-scale religious and cultural institutions. To soften the building's verticality, and honor nearby early turn-of-the-century classics, the design incorporates setbacks, varied window forms, and a rotated pyramid cap. ■

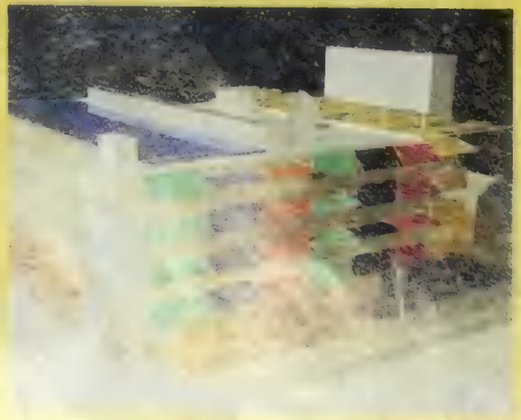


Herly Bouwens

Wales

A Home of Its Own For $5 Million

Alsop & Sturmer's Swansea National Center for Literature opens March 1—patron St. David's Day—1995 to host Britain's Year of Literature and form a permanent public core for the cultural quarter of the city where Dylan Thomas was born. ■



Los Angeles

Emergency Communications Bunker Blends into Hillside



Given the odds for natural and man-made disasters in these parts, L. A.County is building an emergency communications/coordination center designed by Bobrow/Thomas, with Daniel, Mann, Johnson and Mendenhall as executive architects. Blending unobtrusively into a hill overlooking East Los Angeles, the plan focuses on a two-story, tiered-floor "situation room," will be self-sustaining for at least a week and, with a base-isolated steel-braced frame, will resist quakes up to 8.3 on the Richter scale. ■

France

Expanded Opera House Is a Performance Unto Itself

There was a bit of organized booing from the audience echoing through the Lyon Opera when Jean Nouvel took to the stage at the nationally televised premiere of his $89-million enlargement, but the claque neglected to say exactly why it was upset. *The New York Times* European cultural correspondent found the theater, dubbed *Un Nouvel Opera* in publicity posters all over France, "distinctly user-unfriendly," citing a black entrance hall with floor-mounted spots providing glare but not much light, and security railings that cut off balcony views. The vast project plunges six stories down to a new basement and almost extrudes upward from the vise-like historically protected 1831 facade into an exaggerated 1930s Quonset Hut form of glass that dominates the skyline. The machined imagery extends to the acoustically improved auditorium, where 60 percent more seating is arranged in a traditional horse-shoe shape sheathed in metallic surfaces with suggestions of countersunk rivets. Corridors with ceilings and padded walls of brilliant red punctuate the dramatic black and metal statements. ■



Design

Briefs

Quick Change
Queries to the National Trust about potential traffic problems apparently has made Philip Johnson refocus the visitors' center planned for his Glass House estate [RECORD, April 1993, page 25] as a pottery gallery.

Winners
American Academy of Arts and Letters architecture award goes to Frank Israel and its Brunner Prize to Rafael Moneo.
North Dakota State teachers Don C. Faulkner and Jim W. Nelson and recent graduate Larry Carcoana won the *Chicago Tribune* redesign contest for the badly deteriorated Cabrini Green housing project. Belgian Lucien Kroll came in second, and local firm OWP&T third.
The first Royal Oak architectural competition, conceived by Witold Rybczynski, has been won by Richard Wilson Cameron.

Appointments
Bill Lacy has been named president of the State University of New York at Purchase.
Cynthia Weese is the new dean of the Washington University School of Architecture.
The Federal Reserve has named *Frances Halsband* to its architectural review panel.

Publications
The 14-volume Part II of *The Mies van der Rohe Archive* cataloging more than 13,000 drawings owned by New York's Museum of Modern Art and documenting his U. S. work from 1938 to 1967, has been published by Garland. Cost is $3,850.

Competitions
July 21: abstract deadline for proposed papers for the Sustainable Strategies symposium to be held in Seattle this fall. Call: COTE 202/626-7451 or 7569.
August 15: deadline for the New York City/Long Island Masonry competition. Contact: Masonry Institute, 445 Northern Blvd., Great Neck, N. Y. 11021 516/487-5400.
September 30: deadline for the Shinkenchiku Residential Design competition to be judged by Renzo Piano. Contact: Shinkenchiku-sha Co., 31-2, Yushima 2-chome, Bunkyo-ku, Tokyo 113, Japan.

Remembered
New York City architect Walker O. Cain, 78, died in June. He was a one-time associate with McKim Mead & White.
James Murphy, long-time Profession and Industry editor of *Progressive Architecture*, died suddenly in May. ■

New Orleans

Will Gambling Glitz Kill America's Favorite Sin City?



Now that Native Americans in Connecticut have proved that tourists will gamble huge sums in modest venues with picture-windowed woodland views, New Orleans is falling back on Las Vegas rules for its only legal land-based casino. Planned to be the world's largest, the Grand Palais by Projects International New Orleans and five local firms—Mathes Group, Hewitt Washington, I. William Sizeler, Billes Manning and Eskew Filson—encloses a comprehensive one-stop sanitized simulation of New Orleans that will draw money from the rest of the city's tourist revenues. The interiors reproduce cobbled streets, typical facades, gas lamps, and a Mississippi that meanders around the gaming area carrying boats on 15-minute rides through a robot, laser, surround-sound history of the city whose one-time notorious reputation got gambling banned in the U. S. in the first place. The only naughtiness in the scheme is a state law limiting land-based gambling to the current site of the Rivergate Exhibition Center in a reviving warehouse area dating back to 1850. The local AIA has called for site-selection studies. ■

National

RECORD's Charles Hoyt Becomes AIA Fellow



Senior editor Charles King Hoyt was inducted into the AIA College of Fellows at the national convention in Chicago. Since 1973, his contributions to training and practice have included pioneering RECORD articles on the Mideast and Eastern Europe, liability, and housing for the elderly, and a series he commissioned on marketing, law, and the future of education. He also headed the New York AIA Historical Buildings and Haskell Awards committees, and explored the impact of corporate building and retailing on the quality of life for Cooper-Hewitt publications.

This Month

Architects' Fees: Arresting the Downward Spiral. *Page 28.*
RECORD asks those in the trenches about getting profitable fees and reveals the results of a survey of current fee practices in a sampling of offices.

Construction Costs. *Page 32.*
After jeopardizing a shaky construction recovery, fourth-quarter cost rises slowed down, ending the year at 0.11 percent.

Construction Economy Finance. *Page 33.*
A pall hangs over the economy, but the patient is expected to revive beginning at midyear.

Specifications Series: Exterior Insulation and Finish Systems. *Page 34.*
While architects may know the advantages of this type of wall cladding, they also should know what the different application methods mean to their specifications.

Gut Issues '93: New Approaches to Practice

RECORD continues interviews with principals in varied firms around the country on topics of basic concern—asking what they're experiencing, how well they're coping in a flat market, and how they think the profession should mobilize for action in an increasingly diverse marketplace. This month, the editors get architects' ideas on what to do about low fees and sample current fee practices.
C. K. H.

Architects' Fees: Arresting the Downward Spiral

Low fees rival Byzantine selection procedures as major challenges facing today's architect. For a look at what some architects recommend to raise fee levels, RECORD polled over 100 firm principals from a cross section of firms around the nation. RECORD now reports on how these architects see the extent of the problem, approaches they would use to negotiate better fees, and ways they can better match their services to the value of their fees. Finally, these architects agreed, as one effective way to stop the current downward, cut-throat spiral, to share the terms of their current contracts so that RECORD readers may learn, at least on a limited basis, how other architects are pricing their services. And they point to a way that architects on a national basis can improve their lot.

Architects' fees are often determined on a hodgepodge of misinformation and rumor about the amount the client is willing to pay and the degree of pain firms competing for a commission are willing to suffer. This is made worse by downward marketplace pressures, heavy competition [see *Jousting for Commissions* RECORD, January 1993, pages 30-33], and unreliable information on what the last similar project cost to produce. "Architects tend to have egos that defy less than sworn veracity," comments Los Angeles architect Frank Miller on the amount of accurate information others are willing to share on fees. Of course, egos are only part of it. Without standard fees, playing cards close to the chest can mean survival.

Is the current situation pressuring architects into lower fees than are profitable and fair for the scope, responsibility, and expertise involved in their tasks? Almost all of over 100 firm principals across the country recently polled by RECORD said yes. This was true of small and large firms. (For a breakdown of firm sizes, see overleaf.) "An architect spends six months designing a $10-million building for a 4-percent fee and maximum liability," says Hal Craddock, a principal of Architectural Partners in Lynchburg, Virginia. "A real-estate agent sells it in two weeks and receives a 6-percent fee with minimum liability. The lawyer in the deal soaks everyone. Something's wrong!"

Do current fees make for a happy working climate? "There's no comfort zone—just pressure to perform," moans Raymond M. Rocker in Los Altos, California.

How much under a fee equal to their effort and responsibility do these polled architects think they are getting? Most say between 1 and 50 percent, meaning that their fees, to be considered fair, would have to be as much as half again the amounts they are getting. Some say as much as 100 percent, meaning that they should get twice what they are. Others say between 1 and 5 percent, meaning they should get that much more percentage of the cost of construction.

Many ideas on how to achieve fair fees: The militant approach

"Architects in the U. S. need to form a union," says Mark Swanson of Mark Swanson Associates in Indianapolis. "How can the government set a prevailing-wage scale for labor and not consider it price fixing? Yet, when architects discuss fair fee rates, they are sued by the government for antitrust violation. I suggest employing a labor-law firm and forming a brotherhood to end our continual beating up of each other on fees and set up a system in which fair fees would be part of the code of ethics. Architect selection could go back to being based on merit and not money." Whether a new "brotherhood" would fare better with the Department of Justice than the AIA remains to be seen. "The federal government has nerve to say 'Do as I say, not as I do'," adds a Whitehall, Pennsylvania, architect.

"Publish fees of others," says Jan Peterson in Fort Collins, Colorado, "i.e., real-estate agents receiving 7-percent fees for filling out an MLS report and shaking a few hands at an open house, and compare their fees with those an architect receives for 10 years of liability exposure." "Rewrite standard AIA owner-architect agreements to reduce services and liability," says a Seattle architect. "Then the public would understand that they cannot get everything for nothing." Clearly, this architect is looking for shock value.

"Start right now with a program that will, in two to four years, begin to drastically reduce the number of architects," recommends

fter the Department of Justice struck down recommended-fee :hedules, the AIA's hands were tied in establishing uniform and rofitable fees. But architects are free to charge as they wish.

ank Miller. "First, throw out all State egistration exams and let the universities ant the title architect. Let the schools eed out all but the competent, knowing at incompetence can come back to haunt em." He describes a nine-year program, in- ding three years of practical experience in office, followed by two years for a Mas- rs Degree. How would the schools survive they scared so many architects away? iller recommends they offer minors in ar- itecture to those majoring in other fields.

lucating the public

ees and respect for the profession go nd-in-hand," says W. E. Kline in Pennsyl- nia. "Stop unlicensed people from acticing and contractors from using archi- cts as subcontractors, and we will restore nor to the profession."

he popular press and possibly television eds to repeatedly send the message that tter architectural fees *save money* now d in future maintenance by allowing ex- rimentation and study of problems and lutions," suggests Giorgio Cavaglieri in ew York City. "And it needs to point out, rticularly to government agencies, that sign by committees of bureaucrats over e architect is damaging, inefficient, costly, d draining on the practitioner's enthusi- m." A Santa Monica architect seconds this ea: "We need television programs that talk out the process of getting buildings built stead of waxing euphoric over the 'beauty' buildings by famous people after they're ilt." "Publish articles on detriments to the blic of low base fees," suggests a darburg, Wisconsin, architect. "In the rds of a New York City clothing store," ncludes New Yorker Lester Q. Korzilius, n educated consumer is our best stomer."

e practical approach

discuss fees with my peers," says J. C. smeier in Rancho Pales Verdes, California, o suggests an informal exchange of in- rmation to replace the missing standards. Local] AIA members charge similiar fees," notes. "Others charge cut-rate," implying at the community knows what it is getting. Ve exchange information with one another," ds Lester Rosenwinkel in Philadelphia.

"Insurance companies set reasonable rates for doctors," points out an Easton, Massachusetts, architect. "Why can't liability carriers do it for architects?" Of course, the medical insurers set upper limits, but it would be in the liability-insurance companies' best interests to set low limits so they know they are insuring healthy practices.

"Standardize *services* by firms doing similar work," recommends Brian Brand in Bellevue, Washington. "Owners cannot measure the differences in service, but only in fee." One method: Perform all basic services described in the standard AIA architect-owner agreement (see *The argument for full-service contracts*).

"Itemize fees for each basic service as well as extra services, just as contractors itemize cost of work per line item," suggests the Seattle architect. These, like the contractors' charges, would include overhead factors, profit factors, and taxes, ending confusion over the total fee for the project. He feels that clients, who can see exactly where their total fee goes, will be more willing to pay it and that, in any case, this will end bickering over what is included in the contract.

"Make local authorities require architect-stamped construction drawings for buildings over 35,000 cubic feet, including houses," recommends architect Thomas Mailander.

Best solution in shared information

Like it or not, architects are going to have to get together and come clean on fees. But how? "Publish going rates drawn from surveys such as this," responds the Cedarburg architect. "Polls by a magazine such as yours would provide a helpful informal guideline," observes Honolulu architect Frederick H. Furer. "Knowing what other professionals are charging can be *very* useful," he adds somewhat understatedly. Most of the polled firm principals expressed similar sentiments, but clearly a bigger sample than this one is needed to make architects really sure of their ground—a much bigger sample. (For the results of our limited sample of firm fees, see charts, page 31.)

For the moment though, architects will have to wrestle with competition on fees. "I'd rather go fishing than work for free," observes a North Carolina architect. If we are not to see the shores crowded with architects casting their lines, are there ways they can raise income without raising fees?

Getting tough on scope of services

"We tightly define the scope of our work," says an Indianapolis architect, "and extra the hell out of clients for additional inspections, changes, and other items. We're not proud of this, but it's a must to survive." The firm does not assist owners with contractor agreements or obtaining government approvals as part of basic contracts for its mostly industrial and public-works projects, but does include quite a few often extra services in basic contracts, such as revising drawings for changes initiated by others. Says a Cleveland architect: "We aggressively pursue extras for additional services." Cautions Jan Peterson: "I do not believe in sneaking in extra charges because I was unable to negotiate more than a low basic fee." (For a list of what architects are doing to achieve decent returns, if not higher fees, see *Ways to Get Tough*, page 31.)

"The media need to repeatedly send the message that better architectural fees save money now and in future maintenance by allowing experimentation and study of problems and solutions." Giorgio Cavaglieri

The argument for full-service contracts

Many architects see providing full services such as those listed in the standard AIA ar-

chitect-owner agreement as the only way to both build respect for what architects do and to assure that the fees they quote cover the same effort. "Firms have to stop abdicating responsibility for certain basic services," says James Timberlake of Kieran Timberlake Harris in Philadelphia, to those who would cut back on services. "We must take an inclusive view, not an exclusive view, i.e., [self-indulgent] design at the expense of preplanning and construction-phase services." His firm provides the full range of basic services for mostly college, university, and single-family-house commissions, but is strict about services not included in standard basic contracts such as evaluating contractors' proposed substitutions. "We include these in basic contracts only if requested and additionally compensated," he says. As we shall see, he is not typical.

Chicago architect William Hicks thinks that state licensing laws should require all architects to observe construction—that this will even the playing field with those who do not. Herbert Fritz of Fritz Baily Architects in Tulsa reports that his firm will provide full services for its mostly health-care and commercial clients for a fixed fee based on a preagreed construction budget, but reserves the right to renegotiate if that budget changes appreciably.

Cafeteria approach to basic services

"Cutting back on basic services often hurts the quality of the finished project," says John Field of Field Paoli Architects in San Francisco. Nonetheless, the firm does not give construction-cost estimates to its primarily retail clients whose smaller-scale projects fall within fairly predictable ranges. Says a Washington, D. C., architect specializing in houses: "I will assist in getting and evaluating cost estimates from the owner's consultant or contractors." The cafeteria approach is the most popular among our limited group of respondents (see graph) and may well be the most popular technique for many other firms faced with low-fee pressures.

Some fees seen as profitable

Some architects are seeing the current [illegible] as [illegible]. Harry Hayes of [illegible] Hayes Seay Mattern & Mattern in Roanoke, Virginia, has seen the median fee drop from 10 to 13 percent to 6 to 8 percent for basic services. For some projects, 8 percent is profitable. For others, it's not." As a Guilford, Connecticut, architect puts it: "For larger projects, current fees are fair. For smaller ones, no." William Hicks of Zar-Hicks Architects, in Chicago, finds discrepancies between types of services: "For technical inspection work, fees are profitable. For typical design work, they're not."

James Boggs of Boggs Consultants in Corpus Christi, Texas, sees the situation a little differently: "The real question is: 'Do I take enough home?' The answer lies in whether or not I practice efficiently. If I do, then the answer is no." Clearly, he, like many architects, wonders if he always makes the best use of his time and, if he does, he thinks he is not getting enough for it. A Boston architect feels that he is fairly compensated for his work, but not the liability he incurs, which is typically higher for his specialty, renovation. He puts in 70-hour weeks.

A Charlotte, North Carolina, architect takes the positive approach: "I'm becoming more adept at negotiating fees equivalent to the work performed. Some are fair, some reasonable (especially negotiated services), and some are marginal."

Hardliners

"Develop a fee schedule, print it, and show it to clients. Explain it's office policy to prevent bargaining," says a Santa Monica architect. "Of course," he adds, "if the client finds a cheaper fee, I will not get the job." Ann Agnew in Los Angeles does this as well. It must be noted that both architects are in a high-competition locale.

A touch of humor is offered by Texan James Boggs: "1. Hire a business manager. Set annual budget, including my salary.
2. Hire a salesman. Set quota. Staff up. Develop work.
3. Hire another salesman. Staff up. Produce work.
4. Fire business manager. Scare hell out of every body.
5. Start over until you get it right. But *never* accept a fee less than it will take to produce properly." *Charles K. Hoyt*

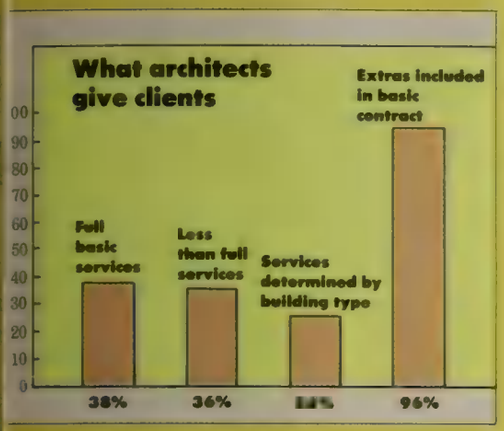
How 100 Surveyed Firms Structure Their Contracts

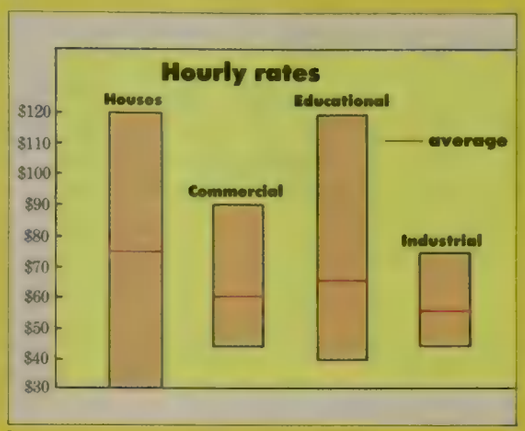
Randomly chosen to represent a cross section, most participating architects are in small firms. Two-thirds employ five or few professionals; the largest, 50. Over one-thi are single practitioners.

Slightly less than half of these firms work only by percent of construction cost. Just u der a quarter work only by percent on som project types and by the hour on others. Those generally charging by the hour note that commercial and government clients al most always require a percent-based fee, n wanting to risk the possibly higher costs o an open-ended hourly contract. Some firms see advantages to charging by the hour on custom houses, educational and industrial buildings, and apartments, while others se advantages to charging by percent.

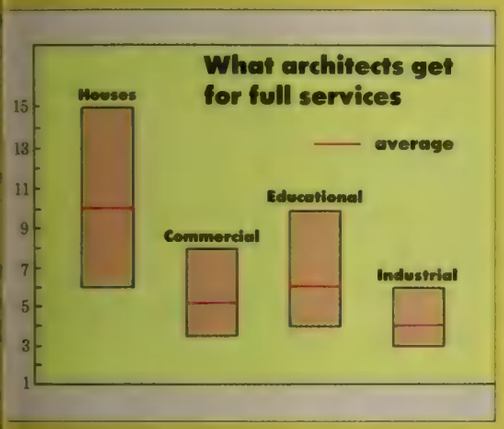
The firms charging by the hour note that th costs of producing a thorough design job a going to be higher than clients will general want to accept at the beginning of the contract. Those charging by percent are either responding to client demand or are plannin on doing the job with high efficiency, if not high design. A few firms charge only by th hour on residential, interiors, or renovation work; these tend to be in the five-professional-or-fewer category.

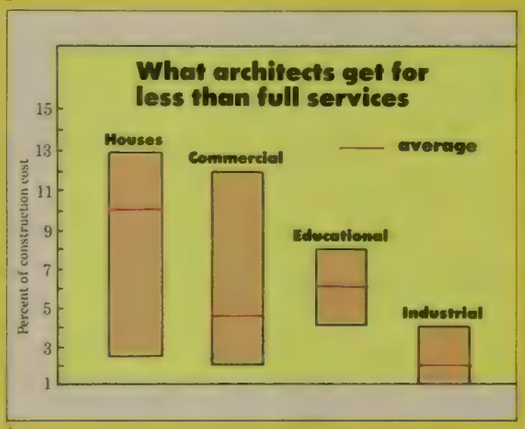
Maximum fees, regardless of actual construction cost or production hours, are offered by several firms that work by percent and several that work by the hour; the policies range from offering this at no extra charge to charging 50-percent more. The remainder of firms work for fixed fees. How do they determine the amounts? Most will carefully estimate the time required for eac phase of work by referring to past projects add on a modest profit, and hope they are right. "Then we negotiate downward due to competition," says a Whitehall, Pennsylvania, architect. "After figuring the hours, I factor in how much I think the client is willing to pay," admits a Washington, D. C., architect, "thereby shooting myself in the foot." "We used to have an accountant figuring out all the wrong figures," says a Dallas architect. "Now, we just take a wild guess based on the job's complexity."





2





4

nly 38 percent of respondents include all rvices called for in the AIA's standard vner-architect agreement in their basic ntracts (see chart 1). Slightly over a uarter of responding firms give all these rvices in contracts for some project types id not for others. This was true for large id small firms. Among usual project pes for which these firms will give full-rvice are commercial, educational, alth-care, and other institutional work. ie usual project types for which they do ot are houses, industrial, government, id interiors work. Instead, the owner's presentatives on industrial and govern-ent work will typically evaluate the vner's program, assist with owner-con-actor agreements and award of that ntract, and filing for government ap-ovals. On government work, the owner's presentative will typically also provide l construction-phase services. On custom sidential work and interiors work, it is pical not to provide adjusted cost esti-ates. Firms never giving full services ually specialize in houses, industrial, vernment, and interiors work.

There is little correlation between the amount of basic-fees and the number of services included in contracts (charts 3 and 4). Yet almost all firms will include many services in basic owner-architect agreements that, according to the AIA's standard agreement, should not be there (see list, right). And they will include different ones. For instance, one firm may analyze the owner's needs and not the site, and another firm do the opposite. Many will perform services more than 60 days after substantial completion. "We're trying to get out of this bad habit," says James Boggs. According to Bradford Perkins of Bradford Perkins Associates in New York: "The concept of extra services is obsolete; each job is different."

Hourly rates for extra services or hourly basic contracts in surveyed offices (chart 2) run a wide range due to the larger firms that use different hourly charges for principals and others. Larger firms' average multiplier is 2.5 with a high of 3.5 and a low of 1 1/4. Most smaller firms and sole practitioners tend to have lower rates.

Ways to Get Tough

Slightly more than half the respondents here say they have found better ways to achieve better returns for their services without raising fees. They could be doing what many architects are doing. Among their methods, starting with the most popular:

- Cut back on basic services by more tightly defining those in the contract. The most popular target for elimination or reduction: some or all cost estimates.
- Charge hourly for all design-phase services and at a fixed rate (lump-sum or percent of construction cost) for contract documents, on which the hours required can be more easily estimated.
- Charge hourly with an estimated upset, but no guarantee.
- Limit liability by restricting responsibility in contract—a technique that has had mixed success when put to the test.
- Make the owner pay all consultants directly.
- Charge hourly for all meetings—especially with building departments and community groups.
- Bill CAD hours as reimbursables, a technique, which works less well than it did ten years ago.

Extras in Basic Contracts

1. Evaluate contractor's substitutions.
2. Investigate existing conditions.
3. Work with owner's consultants.
4. Prepare documents for alternate, separate, or sequential bids.
5. Analyze owner's needs.
6. Design furniture for building or spaces.
7. Do as-built drawings.
8. Services more than 60 days after substantial completion.
9. Provide future-expansion studies.
10. Design tenant spaces.
11. Evaluate site.
12. Make revisions to approved drawings not initiated by architect.
13. Prepare reports for government approvals.
14. Coordinate separate contractors.
15. Produce detailed construction estimates.
16. Supply client-requested CAD system.
17. Provide extensive site representation.
18. Prepare financial-feasibility studies.
19. Advise on equipment operation.
20. Analyze operating costs. ■

Costs Level off, Harbingering Spurt in Construction

After jeopardizing a shaky construction recovery, fourth-quarter cost rises slowed down, ending the year at 0.11 percent.

Following two quarters of accelerating cost rises that, if unchecked, could threaten the current spotty construction recovery, the rate of upturn suddenly leveled off in the final quarter of 1992 to a national pace of 0.11 percent—down from 0.60 percent in the previous period.

This was despite an alarming increase in lumber costs that began in that final quarter and has, by now, caused costs in some locations to soar by as much as 80 percent. Suppliers blamed it on the spotted owl [see RECORD, June 1993, page 25], citing sharp cuts in logging allowed in federal forests for the purpose of protecting this endangered bird. Others blame it on demand.
House construction, which uses much lumber, has by far outpaced less lumber-intensive building types such as offices. Producers, who had held the line on costs earlier in the year, may have finally seen a chance to make up for lost ground.

Low overall construction-cost rises would have been even lower on a national basis if they had not been boosted by costs in the western half of the country (table below). Two areas, metropolitan New York and New Jersey, and the Northeast states aside from New England had rises of only 0.01 percent. The Southeast states, having the greatest rise, continued to pull ahead of the other states in the East, after starting the year with a lower-than-average cost rise.
Charles K. Hoyt

Data supplied by Dodge Cost Systems
Marshall + Swift

U.S. Summary of Building Construction Costs (in per cent)

DISTRICTS	# Metro Areas	10/1992 TO 01/1993	01/1992 TO 01/1993	1977* TO 01/1993
EASTERN U.S.				
METRO NY–NJ	18	0.01	1.02	2043.64
NEW ENGLAND STATES	33	0.04	1.01	1891.83
NORTHEASTERN STATES	120	0.01	1.03	1777.60
SOUTHEASTERN STATES	106	0.07	1.02	1865.80
AVERAGE EASTERN U.S.	277	0.04	1.02	1856.95
WESTERN U.S.				
WEST CENTRAL STATES	122	0.14	1.03	1769.38
PACIFIC COAST STATES	106	0.11	1.02	1844.80
AVERAGE WESTERN U.S.	228	0.13	1.025	1804.32
UNITED STATES: AVERAGE	505	0.11	1.02	1834.00

*USING ONLY CITIES WITH BASE YEAR OF 1977.

Historical Building Costs Indexes

Average of all Nonresidential Building Types, 21 Cities

1977 average for each city = 1000.0

Metropolitan area	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 1 Q	1992 2 Q	1992 3 Q	1992 4 Q
Atlanta	2360.6	2456.7	2448.7	2518.3	2561.9	2580.9	2697.3	2740.4	2711.3	2740.2	2728.1	2762.9	2792.6	2817.7
Baltimore	1639.5	1689.7	1703.7	1743.8	1765.2	1780.2	1849.1	1886.8	1895.2	1862.1	1867.6	1861.7	1867.6	1867.6
Birmingham	1468.1	1535.7	1594.7	1565.7	1587.4	1542.6	1612.5	1643.0	1634.5	1650.2	1655.3	1657.6	1674.3	1704.4
Boston	1502.0	1569.9	1646.0	1721.0	1773.6	1883.0	1921.6	1917.2	1918.4	1915.7	1924.3	1928.5	1929.0	1934.8
Chicago	1425.8	1439.5	1476.7	1528.0	1599.9	1591.4	1636.5	1672.8	1690.9	1735.9	1735.6	1766.0	1767.1	1779.5
Cincinnati	1362.6	1430.8	1484.5	1486.6	1499.4	1510.9	1526.8	1560.7	1552.3	1554.9	1552.9	1563.2	1575.6	1618.1
Cleveland	1511.4	1475.9	1464.0	1474.1	1525.7	1541.8	1550.7	1556.3	1526.1	1517.3	1515.0	1511.3	1521.4	1553.3
Dallas	1834.3	1925.9	1958.0	1963.3	1973.9	1947.2	1927.2	1877.3	1837.0	1828.5	1826.4	1840.0	1867.6	1901.2
Denver	1679.1	1800.1	1824.3	1821.8	1795.8	1732.7	1725.3	1725.9	1663.7	1654.8	1668.2	1675.7	1685.3	1698.8
Detroit	1638.0	1672.1	1697.9	1692.6	1696.6	1689.3	1734.4	1751.2	1737.4	1736.8	1725.8	1727.9	1724.9	1769.7
Kansas City	1381.8	1407.5	1447.1	1472.5	1484.7	1493.7	1505.6	1518.8	1510.8	1525.6	1530.2	1530.9	1546.2	1612.7
Los Angeles	1503.3	1523.9	1555.1	1571.0	1609.7	1675.1	1789.5	1813.7	1800.9	1749.2	1743.8	1756.1	1768.6	1807.5
Miami	1392.1	1467.6	1522.2	1540.6	1566.2	1589.2	1625.2	1641.3	1638.8	1642.7	1644.3	1645.9	1681.2	1730.0
Minneapolis	1576.8	1624.6	1640.4	1661.0	1674.0	1677.0	1690.6	1712.5	1676.0	1652.0	1654.8	1683.1	1685.2	1708.8
New Orleans	1616.9	1650.5	1691.4	1762.5	1760.2	1699.8	1707.3	1685.0	1695.3	1726.3	1732.5	1745.9	1799.6	1815.8
New York	1491.8	1672.5	1747.2	1806.7	1899.9	1980.9	2065.3	2157.2	2126.2	2105.5	2098.8	2134.0	2130.2	2143.5
Philadelphia	[illegible]	1819.5	1922.1	1967.9	1992.7	2023.5	2171.4	2244.3	2249.0	2217.3	2220.7	2220.1	2214.1	2234.0
Pittsburgh	[illegible]	1497.2	1576.1	1611.0	1665.8	1647.3	1700.3	1721.3	1688.7	1708.5	1709.8	1735.0	1732.5	1732.5
St. Louis	[illegible]	[illegible]	[illegible]	1641.8	1647.4	1653.5	1705.7	1761.1	1732.5	1769.5	1768.9	1775.4	1798.9	1840.3
San Francisco	[illegible]	[illegible]	[illegible]	[illegible]	1995.5	1992.0	2090.9	2114.3	2156.0	2169.3	2151.3	2157.6	2162.3	2155.8
Seattle	[illegible]	[illegible]	[illegible]	[illegible]	1825.3	1874.7	1968.0	1987.0	2017.6	2027.4	2042.4	2077.4	2091.2	2130.9

[illegible] period by dividing one index into the other; if the index for [illegible] city for one period (200.) divided by the index [illegible] are [illegible] higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 [illegible] od

Construction Economy: A Brighter Picture

A pall hangs over the economy, but the patient is expected to revive beginning at midyear.

fter a bumpy first half, economic perfor-ıance promises to be just as uneven in the econd. But the year-end will show that the conomy grew at a healthy 3.5-percent an-ual rate from July to December.

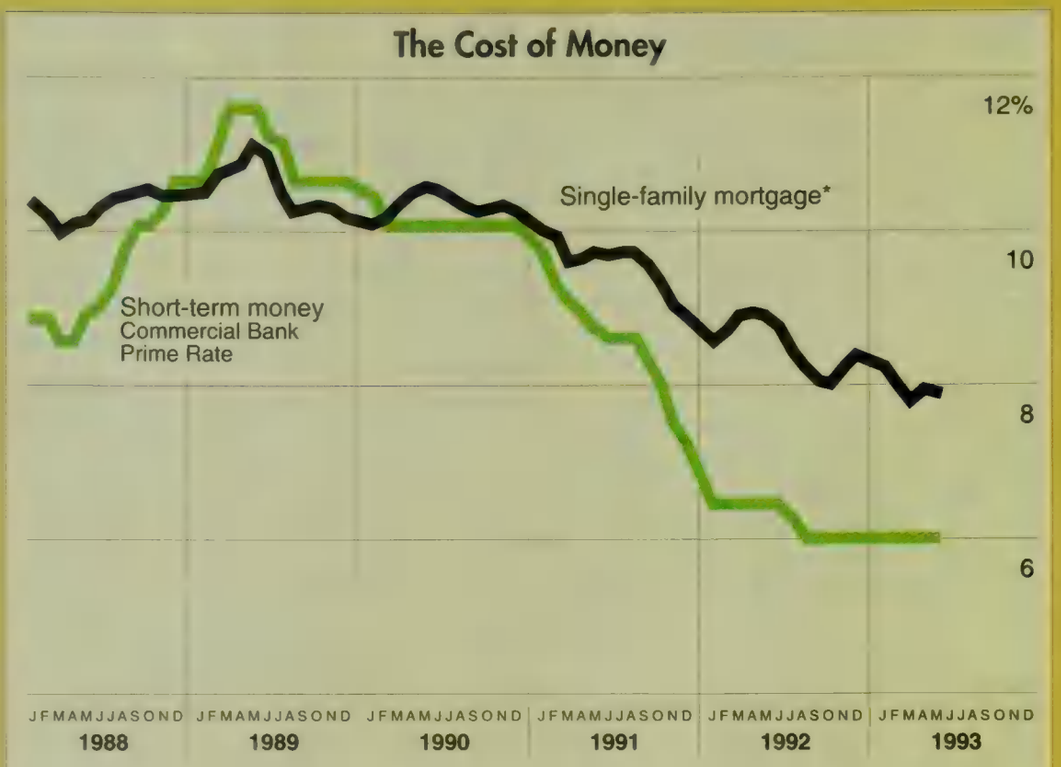
nly six months ago, the economic outlook as sunny. The economy had just finished 992 with the largest quarterly gain in GDP years. Inflation was not a problem, allow-g monetary policy to be accommodating. nd a new President was pledging to de-elop programs that would create jobs, ebuild the infrastructure, stimulate invest-ıent, and simultaneously reduce the deficit. ix months later, a pall hangs over the econ-my. Economic growth has slowed to less ıan 2 percent. Inflation seems to have reap-eared. And missteps in Washington are roding confidence in the government's abil-y to stimulate the economy and reduce the eficit.

ssessing the long-term

or more than a decade, international com-etition, inflation, technology, and the xcesses of the 1980s have been forcing the . S. to reshape the way it produces goods nd services. In the manufacturing sector, roducers fought to recapture domestic and orldwide market share through improved uality and greater productivity. When the conomy eventually slid into recession, the evitalization process pushed aggressively ıto the service, financial, and retail sector s falling demand compelled companies to educe employees, trim capacity, and im-rove efficiency.

ot surprisingly, the last holdout is the fed-ral government. In the near term, it will be usiness as usual in Washington. Clinton's ax increases may pass, but spending cuts ill not. Relying exclusively on tax hikes to educe the deficit is a major negative for the conomy. Higher taxes will siphon income way from consumers and businesses just hen it is needed to fuel expansion.

learly what has been missing from this re-overy is a sustained surge in employment. recent years, a broad range of businesses ave stressed equipment purchases, rather ıan hiring more workers to raise productiv-y and improve product and service quality.



* Notes:
National average effective mortgage rate for all major lenders and all loans, regardless of whether mortgage financed the purchase of a new or existing home. Mortgage terms exceed 15 years.

April and May 1993 single family mortgage figures are PEK estimates.

Sources: Federal Reserve (short-term); Federal Housing Finance Board (mortgages)

But now more companies are also hiring new workers to operate those machines. After averaging only 55,000 per month in the second half of 1992, job gains climbed to nearly 140,000 per month in the first half of 1993.

As employment rises, so will income. Soon, accelerating earnings will stimulate consumer demand for more goods and services. Employers will respond with more investment in equipment and people, setting off another round of income gains. Significantly, this burst of activity will occur even as inflation subsides from the 4- to 4.5-percent pace of the first half. There simply are no shortages to support price advances above 3 percent. Labor is in ample supply, because of the sizeable pool of unemployed. Material prices are low because of lingering recessions in many major industrial nations. And production facilities, despite recent high-capacity utilization rates, can be used much more intensively because of substantial upgrading of equipment.

As the inflation threat passes, monetary policy will remain supportive of stronger economic growth. That stance is imperative to offset the fiscal drag on the economy from the imposition of higher taxes later this year. As a result, interest rates will continue within their current trading ranges of 3.00 to 3.75 percent for short-term rates and 7.50 to 8.50 percent for 30-year fixed-rate mortgages. In an environment of better growth and stable interest rates, housing starts and sales will flourish. In addition, other areas of real estate, which have been depressed for so long, will garner more attention from shrewd investors.

Already, existing rental units are much in demand. As store sales improve in the second half, investor demand for existing retail space is expected to revive. This does not mean much new building will occur, but it does suggest that the erosion of value in these two building types is ending.
Phillip E. Kidd

Specifications Series: Exterior Insulation and Finish Systems

By Mark J. Kalin

An EIFS meets the conceptual requirements for the ideal exterior material: design flexibility; low cost; energy efficiency; and being well tested. (There are hundreds of thousands of projects already in place.) EIFS is attractive to both designers and owners. Product kits and sample items from EIFS manufacturers are well organized. New-construction and retrofit applications are common.

EIFS does require careful specifications and installation in order to ensure a watertight, enduring building exterior. Water penetration into EIFS keeps a large number of testing and inspection firms busy. This article focuses on definitions of systems, insulation boards, sheathing, reinforcing, and joints.

The short-form guide specifications (see opposite page) assume that an experienced installer will rely on proper details, approved shop drawings, and the manufacturer's recommendations to ensure proper performance.

EIFS does require careful specifications and installation in order to ensure a watertight, enduring building exterior.

An EIFS functions as an exterior-insulation envelope. It typically consists of an integrally colored exterior finish coat over mesh reinforcing, a base coat, and insulation. EIMA, the Exterior Insulation Manufacturers Association, defines two types of EIFS:

Class PB Systems

The base coat varies in thickness depending upon the number of layers or thickness of reinforcing. The thickness can range from a nominal 1/16 inch to 1/4 inch. The reinforcing material is typically glass-fiber mesh, which is embedded in the base coat at the time of installation. Finish coats of various thickness in a variety of textures and colors are applied over the base coat.

Class PM Systems

The base coat varies little in thickness regardless of reinforcing. The thickness can range from a nominal 1/16 inch to 1/4 inch. The reinforcing material is typically fiber mesh which is embedded in the base coat at the time of installation. Finish coats of various thicknesses in a variety of textures and colors are applied over the base coat.

Insulation Boards

Class PB systems are generally installed over molded polystyrene insulation board and are considered to be more flexible than Class PM systems, which are typically installed over extruded polystyrene insulation board. The extruded polystyrene is more resistant to water penetration because it is denser and less vapor permeable.

Because of this difference in flexibility, expansion joints in Class PB are generally required only over a building's basic expansion or control joints, while joints in Class PM systems follow the frequency used for stucco, with joints for every 100 square feet of wall area.

These generalizations are an effective way of differentiating between the systems, although many manufacturers have hybrids.

Insulation boards may be adhesively applied, mechanically fastened, or both. Molded polystyrene is typically adhesively applied, while extruded polystyrene is typically mechanically attached to the substrate.

Sheathing

Selection of sheathing is critical. For adhesively attached systems, sheathing must be acceptable to both the EIFS manufacturer and the sheathing manufacturer. Manufacturers of gypsum sheathing caution that the paper face on th sheathing is not a suitable substrate for EIFS systems. Other sheathings, using a fiberglass or cementitious base, are more popular and more durable. Masonry and concrete surfaces are also acceptable susbtrates.

For mechanically fastened systems, fasteners should penetrate through the sheathing to a sound substrate. The pullout strength of fasteners in sheathing alone is insufficient for mechanical attachment of insulation. Many manufacturers use plastic tracks and special trim to support insulation and provide special detailing or grooves which create the required design profiles.

Reinforcing

Reinforcing fabric for Class PB systems is available in standard, intermediate, and impact-resistant weights, ranging from approximately 4.4 ounces for standard weight to 20 ounces for impact-resistant reinforcing.

Reinforcing fabric for Class PM systems is typically provided in a smaller range, with weights from 4.5 to 6.4 ounces. The hardcoa base of the Class PM systems is more impact-resistant than the base coat of the Class PB systems.

Impact-resistant reinforcing is required at areas accessible to pedestrians and areas subject to potential abuse from maintenance or playground activities. Multiple layers of reinforcing are recommended at certain types of joints such as corners of windows and other penetrations.

Joints

Multipart nonsag urethane sealants are generally suitable for use with EIFS. Most EIFS manufacturers have tested specific sealants and only those sealants should be used. All areas where the system meets dissimilar materials, or in areas where the system has a joint through itself, needs a

Mark Kalin is president of Kalin Associates, a specification consulting firm located in Newton, Massachusetts. He is author of the AIA Master Guideline Specifications and co-author with Sweetman of the AIA Handbook of Building Specifications Systems.

look at EIF Systems includes Class PB Systems (variable ickness); Class PM Systems (same thickness); insulation boards; eathing; and joints.



tallation involves a trowel-on hnique. Photo, courtesy of Thoro stem Products.

lant joint. Adhesion of the sealant to the e coat is critical to the success of the tem, as the topcoat may soften over time l pull away from the finish coat. The sh coat should not be extended into ts. Sealant performance and proper ign of sealant joints are a major concern. ors are typically selected that blend with field color.

more information

MA publishes technical guidelines and litional information on manufacturers l suppliers. Contact the Exterior ulation Manufacturers Association at 9 State Road, Suite 112, Clearwater, rida 813/726-6477.

EIFS Guide Specification

PART 1. GENERAL

A. Summary

1. Exterior insulation and finish sytem, with colors, patterns, and shapes as indicated over the following substrates:
a. Gypsum sheathing.
b. Cementitious sheathing.
c. Masonry.
d. Concrete.

B. Submittals

1. Manufacturer's product data.
2. Samples showing color and texture.
3. Shop drawings including adjacent construction.
4. Field-built mock-up.
5. Sealant compatibility and test reports.

C. Quality assurance

1. Installer acceptable to EIFS manufacturer.
2. Fire tests and performance as required by applicable codes, ASTM E108, ASTM E119, ULC-S101, UBC 17-6 multi-story test.
3. Maximum deflection of supporting structures, L/240.

D. Delivery, storage, and handling

1. Stack insulation boards flat and off the ground.
2. Keep material dry and protected.

PART 2 PRODUCTS

A. Manufacturers: (list)

B. Finish over molded polystyrene board.

1. Type: EIMA Class PB.
2. Base coat: Portland cement and polymer additive.
3. Finish coat: Polymer emulsion.
4. Thermal insulation: Molded rigid cellular polystyrene.
5. Insulation attachment: Adhesive (or) mechanical fasteners, corrosion resistant.
6. Reinforcing fabric: Standard weight; high-impact type at areas subject to damage.

C. Finish coating over extruded polystyrene board.

1. Type: EIMA Class PM.
2. Base coat: Portland cement, glass fibers, and polymer emulsion.
3. Top coat: Polymer-modified portland cement (or) acrylic emulsion.
4. Thermal insulation: Extruded rigid cellular polystyrene.
5. Insulation attachment: Mechanical fastners, corrosion-resistant.
6. Reinforcing fabric: Standard weight.

PART 3 EXECUTION

A. Examination.

1. Inspect substrate and report unsatisfactory conditions in writing; beginning work means acceptance of substrate.

B. Installation.

1. Comply with system manufacturer's instructions and recommendations.
2. Do not use admixtures.
3. Install insulation without gaps. Rasp to level surface where required.
4. Install all coats to provide uniform appearance.
5. Reinforce corners to prevent crackling.
6. Seal joints to base coat, not finish coat.
7. Install areas of special patterns and textures where indicated on the drawings.

Literature from EIFS suppliers is featured on page 101.

Water Features

Nothing humdrum about plumbing designs from three German manufacturers: strong shapes in chrome, brass, and china.

300. Tactile
Manufactured by Aloys F. Dornbracht and designed by Dieter and Michael Sieger, beautiful lavatory hardware is shown in two lever-handle versions. Delphini (Dolphin) fittings (300a) appear to frolic (well, not quite), launching themselves from the edge of the basin. Available in chrome and silver-nickel finishes as well as the Durabrass option pictured, the collection includes tub and shower faucets, towel bars, shelves, and other bath accessories. Fino (300b) is a more geometric style, with its interrupted-circle handle poised over a severely straight spout. Five finish options include matte black and chrome, all-black, and black handle with brass faucet. Santile International Corp., Atlanta.

301. Vitreous
Also styled by Design-Büro Seiger, lavatories by Duravit AG combine chinaware, laminates, and wood-veneer components in both formal and deconstructivist configurations. One of a four-model washbasin collection called (appropriately) Bagnella, Vito Bagnella (301a) has a pedestal of Canadian bird's-eye maple set between a black-ceramic cap and base. Seiger's newest basin (301b) is named for (and photographed at) Paris' Parc de la Villette, site of Bernard Tschumi's brilliantly colored follies, and it incorporates similar circular, rectangular, and aysmmetric wedge elements. Storage compartment and base are waterproofed with a melamine finish. Santile International Corp., Atlanta.

302. Thrifty
A manufacturer known for luxury bath fittings based in Rodermark, Germany, Jado is now marketing a line of contemporary-style faucets for the kitchen at "competitive" prices. Called Watermaster, the range combines a pull-out hose that goes from spray to stream at the push of a button, with ANSI-compliant 2.2 gallon-per-minute performance. Features include check valves that prevent backflow siphonage, flow control via ceramic disc cartridge, and a matching [illegible] escutcheon plate for retrofit installations. Finish options include the all-chrome shown, white and white and [illegible]. Jado, Camarillo, Calif.



300a



300b



301a



301b



302a



300a. Dolphin faucets in solid brass; Dornbracht.
300b. Chrome and matte black Fino faucet; Dornbracht.
301a. Vito Bagnella wash stand; Duravit.
301b. Lavillette basin and lavatory; Duravit.
302a, 302b. Single-handle kitchen faucets; Groupe Jado.

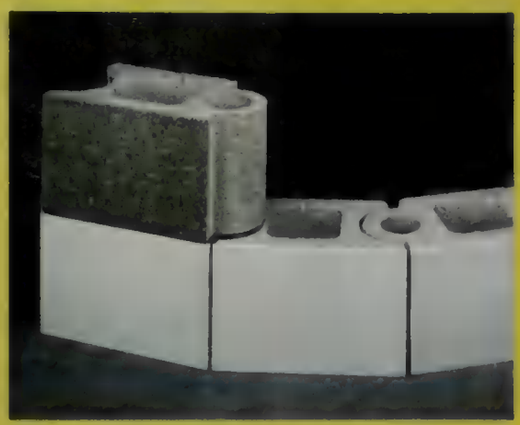
Building Blocks

New shapes, colors, and a broader range of acoustic performance update the cinder block.

03. Architectural-concrete masonry
30-year-old company with sales represen-tion throughout the U. S., Canada, and exico as well as overseas, Trenwyth Indus-es makes glazed-, ground-, and aggregate-ced block and sound-absorbing masonry its in Illinois and Pennsylvania, primarily r institutional and academic applications. addition to glazed-faced units offered in colors, the firm recently introduced new apes and acoustic configurations said to er the architect a larger number of design d noise-control options.

rving facades
dial blocks (a, b), available in 4-, 7 3/8-, and -in. thicknesses, permit any radius greater an 3 ft 6 in., without cutting. The hub at one d of the block fits into the socket of the xt; alternate courses are laid in opposite di-ctions so that the hubs overlap in a modified nning bond and align the hub holes for ver-al reinforcement. Standard 3/8-in. joints are aintained on the convex surface. Radial ocks may be specified in glazed-, ground-, d aggregate-face surfaces. New Apollo ound-face units (c), available in a selected lor range, are priced to reflect the econo-es of an on-site aggregate deposit; and stel colorations such as pink and light green e now offered in terrazzo-like filled and lished Trendstone Plus block (d).

ound-absorbing masonry
osed-top Acousta-Wal CMUs (e) come in expanded range of slot and plenum con-urations designed to absorb sound equencies from 125 to 4000 Hertz, and are rticularly effective in control of lower-fre-ency energy. New plenum designs, Type and Type III, do a better job of capturing, d dissipating, higher-frequency sounds as ll. Reflected by the metal septum, high-equency sounds resonate within the aller chamber which the septum creates, d disappear harmlessly as heat. Selecting slot style (whether wide, narrow, or nnel-shaped), septum type (bare metal or erglass-backed), and unit size lets the signer build precise reverberation- and und-transmission control into a structural ll. (Type IIRF allows for vertical re-orcement, conduits, or pipes). Trenwyth dustries, Inc., Emigsville, Pa.

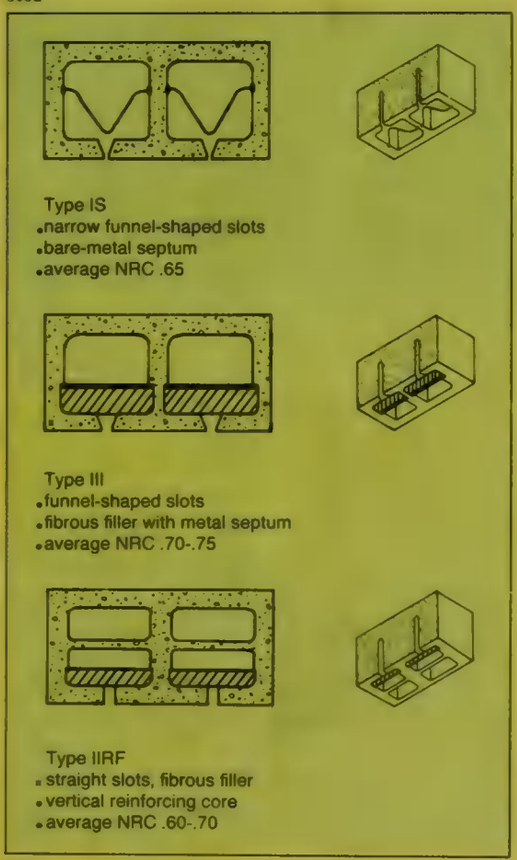

303a




303c

a, b. Radial blocks with aggregate and glazed faces interlock like a hinge to create large-scale curves.
c. Ground-face Apollo units.
d. Filled and polished Trendstone Plus pastel blocks have a non-porous, terrazzo finish.
e. Sound-absorbing structural masonry units, with average NRC ratings.


303d



303e

Generic 3-D, Release 2 for DOS

By Steven S. Ross

This 3-D package from Autodesk, the same company that produces AutoCAD, is cheap to buy, runs well on inexpensive equipment, and is easy to use. You do all your editing in 3-D; if you want to work in 2-D, you simply switch to "single plane" mode (but the translation from 3-D to 2-D screen can take some getting used to in all 3-D CAD software. You can extrude or rotate objects later to move them to 3-D. Rendering is also built in.

Thus, you can use Generic 3-D to rough-model a project, render it, and then use the underlying wireframe drawing as a basis for hard-line drafting.

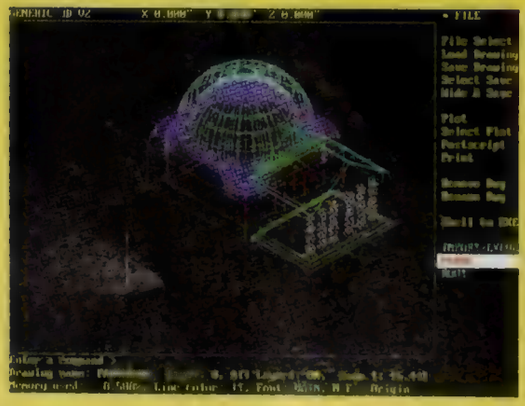
There's also automatic dimensioning, easy text entry, and some symbols (about two-thirds of them architectural) from KETIV and others. It's too bad there's no macro language. Polygons in 3-D are limited to 256 vertices—enough for most purposes.

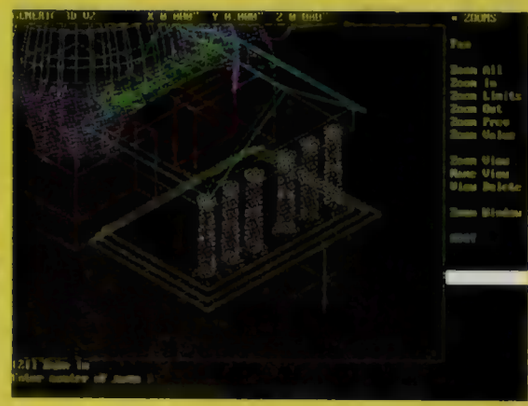
You can import and export DXF files, but you can only import AutoCAD DWG files. AutoCAD formats up to Release 12 are supported. Unfortunately, older versions of Generic CADD used the DWG file extension for Generic's 2-D binary files; you'll get an error message if you try to import them as AutoCAD files.

Why use Generic CAD 3-D? It will run on a small machine, even a small laptop. So it is useful for work-at-home or on the road. The learning curve does not seem to be steep, so it can be used in offices where temporary drafters are needed.

But, frankly, the latest version of the 2-D product, Generic CADD 6.1, due to be released this summer, will allow two-way DWG transfer. There's also a good macro language for the 2-D product, making it the choice for production drafting where AutoCAD compatibility is a must.

Circle number **304**





Generic 3-D summary

Equipment required: Any DOS computer with at least 640K (tight fit—you need 540K of free memory); 2 MB and 80386SX or better CPU running at 25 MHz or faster recommended; standard 640 by 480 color VGA or better recommended. Mouse or digitizer required.

Vendor: Autodesk, Retail Products, 11911 [illegible], Bothell, Wash. [illegible]. $795; upgrade $75.

through the right mouse button; it takes a few hours to get used to. 3-D will read files from 3-D Drafting and 3-D Concepts for Windows. We had trouble with the Install program.

Error-trapping: Don't install into the same directory as earlier versions of the product, or of the 2-D versions (Generic CADD 6.1 and earlier). Generic 3-D will run on a network, but depends on the network software to lock files that are in use. The "undo" command allows the previous 25 steps to be undone; "redo" will put them back. Rotating the 3-D cursor sometimes can confuse you on object placement; the translation from 3-D to the 2-D screen can take some getting used to in all 3-D CAD software.

CalComp DesignMate Plotte

When this D-size (24 by 34 inch) plotter w released last fall, it was among the few (o ers include plotters from EnCAD and Houston Instruments) to offer a large for mat, reasonable plotting speed, and price low enough to attract individual practices rather than service bureaus.

But is a plotter worth the trouble, even if you can afford it? To answer that questio we started playing with the DesignMate t winter, using it with many CAD and mode ing packages. Usually, we ran DesignMat in HPGL mode, emulating a Hewlett-Packard plotter.

Good plotting quality is a given with almo all plotters these days. For in-office use, there has to be more. A plotter must be as reliable and easy to use as a laser printer. This one is. There's a straightforward, we illustrated manual, toll-free number suppo a simple control panel, and a good selectio of available plotting languages. It is a bit noisy—distracting if it is placed only a few feet from a workstation. Plotting speed a acceleration are less than half that of a to of-the-line plotter, but more than adequate to support small task groups working on a specific project; fairly detailed D-size plots come off the system about one every 20 to 30 minutes.

In short: This is a good first plotter for sm offices; use it for presentations and for checkplots. Continue to use a service bure for heavy-duty end-of-project work.

Circle number **305**

CalComp Plotter summary

Specifications: 20 inches per second on 45 degree diagonal; 14 ips on axis, 2g acceleration on 45 degree diagonal, 1.4g or axis; 0.1 percent accuracy, 0.008 inch maximum deviation pen-to-pen, 0.004 in maximu single pen. Maximum plot area 23.6 by 34. inches. Can plot using CDCL and HPGL, HPGL/2, large and small formats.

Vendor: CalComp, 2411 West La Palma Ave., P.O. Box 3250, Anaheim, Calif. 92803. 714/821-2000, 800-451-7568. $1,992 for base unit; stand and 1 MB buffer are optional.

rimavera Project Planner 5.1

. latest DOS version of the widely used ' project-planning software allows a di- link to the Oracle database program, e options for custom reports and graph- more flexibility for scheduling various urces ("calendars"), and some extra d.

ect management software allows you to out only what you put in. Thus, well- ned software should allow you to get a l feel for a project with minimal data, then to go back and fill in more details me and economics dictate. P3 passes the easily. It allows you to build a "net- k" of tasks to do, either on-screen, or in readsheet-like form, or through its menu em. You can also import data from just at any database format and from Lotus -3 files.

h a color VGA monitor, there's an excel- correspondence between what you see creen in graphical modes such as PERT Gantt charts, and what you see plotted rinted.

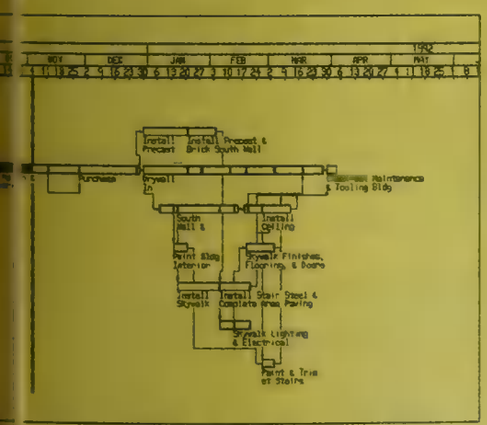
ou need the power? P3 can handle up- ds of 100,000 tasks in a single project. re are also sister products that share data P3. Primavera sells Finest Hour for t, high-intensity projects—mainly indus- —and Parade, to better integrate costs work done to date. Primavera's Expe- n tracks multiple revisions, subcontracts, so forth, and files everything by subject.

But there are other project-management packages—including Primavera's $495 SureTrak Project Scheduler, reviewed last year [RECORD, July 1992, page 39]—that are more than adequate for smaller projects.

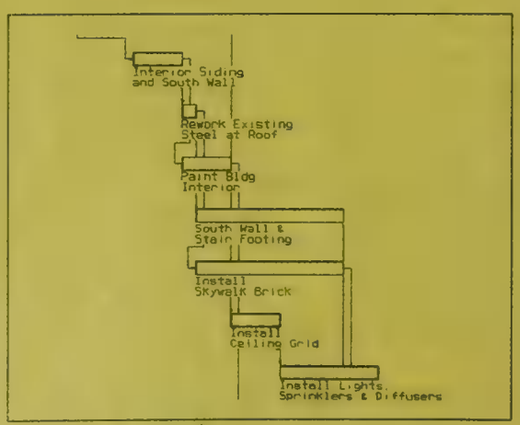
Even for smaller projects, however, the stability and flexibility of P3 may make it worthwhile. We expect to be looking at another alternative from Primavera—a Windows version due this summer. *Circle number* **306**

Primavera Project Planner 5.1 summary

Equipment required: DOS computer with 80486 CPU and 4 MB of RAM strongly recommended for large projects.
Vendor: Primavera, Two Bala Plaza, Bala Cynwyd, Pa. 19004, 215/667-8600, fax 215/667-7894. $4,000 (includes one year of unlimited phone support and free upgrades).
Manuals: Voluminous and first-rate. The Primavera manuals are virtually a course in project management.
Ease-of-use: There's on-screen editing of tasks and modes, as in good Macintosh project-planning software. Output is gorgeous, especially if you have a color plotter.
Error-trapping: Good. The native database format is Btrieve, a stable system. You can embark down a time-consuming command sequence by mistake, but all you'll lose is time—not data. ■



Zoom in on a Generic 3-D drawing by ifying the center of a new view or by ing a window on-screen to zoom to. Primavera time-scaled logic diagram



shows relationship between phases of the project; each new phase may be dependent on an earlier one. Fenced-bars display shows time durations more clearly.

GTXRaster CAD and CAD Plus

There's an increasing market for software that can turn scanned images into the vector files that CAD packages can chew on. This chore is especially vital for architects doing remodeling and renovation work, where the only drawings available are in hard copy, not computer files.

Large practices might use CAD Overlay or an inexpensive but slow package to "vectorize" small parts of a large paper drawing. But fast, "service bureau" quality is pricey. GTXRaster CAD's cost bridges the gap. The Plus version adds some extra functionality for twice the price. But even it might prove cost-effective under certain circumstances, now that large-format scanners cost well under $10,000.

Both versions run with the DOS or Sun (not Windows) versions of AutoCAD Release 11 or 12. They are true "ADS" applications, not AutoLisp routines, so they run reasonably fast as long as you have enough RAM.

Both allow you to select areas of the scanned "raster" image to turn into vectors. Both allow you to "snap" features to parallel lines, arcs, or other geometry. The "Plus" version allows you to smooth scanned features while still in a raster format—saving file space and making the drawing more legible. The "Plus" version also allows you to convert different raster line widths into different vector colors, and to specify angles and distances between elements—even in raster format. *Circle number* **307**

GTXRaster CAD and CAD Plus summaries

Equipment required: A system large enough to run AutoCAD Release 11 or 12 for DOS or Sun computers. Requires 3 MB of disk space for the application, but as much RAM as possible for fast action (both raster and vector drawings should coexist for awhile in memory for fastest operation).
Vendor: GTX Corp., 2390 East Camelback Rd., Phoenix, Ariz. 85016, 602/224-8700. GTXRasterCAD, $1,995; upgrade to Plus, additional $1,995. Both, $3,895.
Manuals: Good spiral-bound format.
Ease-of-use: An easy add-on.
Error-trapping: Impressive. ■

The Man Behind the Legend: The Words and Life of Wright

Frank Lloyd Wright: Collected Writings, Volume 1 1894-1930, *edited by Bruce Brooks Pfeiffer. New York Rizzoli, 352 pages, $60 (hard), $40 (paper).*

Reviewed by Julie Iovine

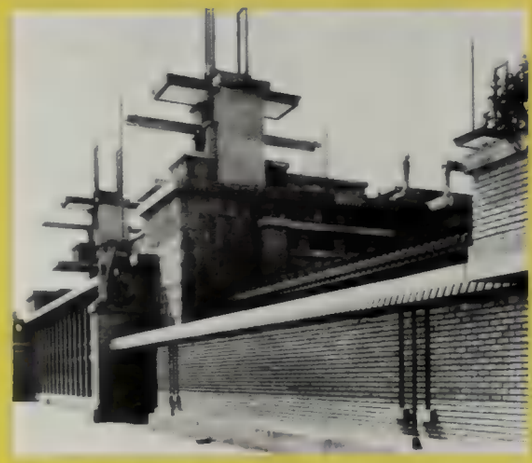
The first of a projected six volumes that will encompass all of Frank Lloyd Wright's articles, lectures, essays, and books (but not his personal letters), this collection covers the formative years during which the Prairie Houses, the Larkin Building, and the Imperial Hotel in Tokyo were built.

Here lie the seeds of Wright's most ardently held beliefs. The prose often gushes. Wright was no writer, following instead the ornate conventions made popular by 19th-century art critic John Ruskin. His judgments against anyone who disagreed with him were extreme and he despised the International Style as a barren dead-end for architecture. And yet, Wright was also capable of remarkable clarity and rationality in the service of his vision for an organic architecture derived from natural forms. Whether addressing the perfection of a Japanese print or the career of his master Louis Sullivan, there's a marvelous consistency in his voice that becomes more confident with each passing year.

The energy of Wright's ambition and opinions radiates from every page of this book. "Queen Anne! What murder!" he shouts in a piece about craftsmanship and woodworking. The book also includes landmark essays such as "The Art and Craft of the Machine" from 1901 and the series on the nature of materials for RECORD in 1928.

Through the years, Wright remained steadfast in his agenda—the natural house, integrated decoration, the machine as "the tool of our time" ("whether we like it or not"), and the potential for Americans (read followers of Wright) to lead the world in residential architecture. His spontaneous appreciation for nature and its potential for educating architects were more relevant today than ever.

Julie Iovine is an editor at The New York Times Magazine.



Rizzoli International

Midway Gardens in Chicago.

Frank Lloyd Wright: A Biography, *by Meryle Secrest. New York: Knopf, 1992, 688 pages, $30.*
Frank Lloyd Wright: Collected Writings, Volume 2, 1930-1932, including The Autobiography, *edited by Bruce Brooks Pfeiffer. New York: Rizzoli, 352 pages, $60 (hard), $40 (paper).*

Reviewed by Thomas H. Beeby

The barrage of recent literature about Frank Lloyd Wright has reached such dizzying proportions that it has become nearly impossible to absorb all the information, unless, of course, you are a Wright scholar. But on a personal note, the renewed interest in Wright's life has invaded a province of my mind that previously had been private: memories of my childhood, living next to a Wright house and looking down on its mysterious darkness from my bedroom window, memories of my father and grandfather (who had done engineering work for Wright) speaking of him with an awkward mixture of admiration and disapproval, and finally memories as a young practitioner roaming the valleys of southwestern Wisconsin to understand the power of the landscape that Taliesin was drawn from. I suppose it is the fate of the gifted, such as Wright, to be personally exposed first by their admirers, then by historians, and finally by biographers.

Meryle Secrest's biography lays open the life of Wright in a generalized way that allows us to grasp Wright as an individual. It is interesting to see him examined in this way by a biographer rather than a historian or architect. I am not qualified to judge th book in detail for its absolute accuracy; ho ever, I sense there is an overlap between proven data and personal anecdotes that might cloud the experience of reading this book if one were a Wright scholar.

But in an overall sense, the book rings tru in its portrait of Wright as an architect an human being, rather than either the Fathe of Abstraction or the last Representationa Master. Written by a biographer who has tackled Bernard Berenson, Kenneth Clark and Salvadore Dali in the past, the Secrest book is free of ideological myopia.

However, the book does suffer from the in clusion of numerous passages of formal a visual analysis that are based on earlier writings about Wright. There is no doubt that the author has read the available liter ture and criticism related to the buildings.

The problem lies in the lack of an overridin critical mind that would guide the eye through a body of work as vast as Wright' The differences between Wright's early work (which, if anything, is overstudied) a his later work (which, in many instances, i not fully understood) are not made clear, and the varied primary sources for artistic opinions are often not in concert.

Frank Lloyd Wright: Collected Writings, Volume 2, on the other hand, contains Wright at his best. The Kahn lectures give at Princeton in 1930, *The Autobiography,* and an unpublished essay titled "Poor Littl American Architecture" form an interestin primer on Wright. Although these remain some of his most elegant, persuasive, and poignant writings, one wonders why they are repackaged in this format, since they have been for the most part readily availab in previous publications.

These two new books by chance make an in teresting pair and used together will save nonhistorians from random reading adventures in the vast and rapidly expanding literature that has appeared recently on Wright and his work.

Thomas Beeby is a principal of Hammon Beeby and Babka in Chicago.

ilding in a New Spain: Contemporary anish Architecture, *edited by Pauline liga and Martha Thorne. Barcelona: ustavo Gili, 1992, 185 pages, $45.*
e New Spanish Architecture, *by naxtu Zabalbeascoa. New York: Rizzoli, 92, $50 (hard), $35 (paper).*

viewed by David Cohn

ne of the first books to bring the new anish architecture to the United States s the catalog for a show in 1986 titled ontemporary Spanish Architecture: An lectic Panorama." It included essays by anish critics Ignasi de Solà-Morales and ıtón Capitel, an introduction by Kenneth ampton, and a survey of the key works of st-war Spanish architecture.

uilding in the New Spain is the logical se- el to that book, an essential introduction Spain's architectural renaissance. It too is e catalog of an exhibition, this one orga- ed last year by the Art Institute of icago and Spain's Ministry of Public orks and Transportation. It includes es- ys by Solà-Morales, Capitel, and others, th a historical/critical overview by ampton and a portfolio of 12 recent ojects. While the 1986 book had many ws, *Building in the New Spain* is an emplary study, well-documented and pre- nted, with its Spanish text clearly nslated by Kathryn J. Deiss.

ojects shown include many that received

vid Cohn is a freelance writer based in drid.



Palo Roselli

latrava's Stadelhofen Station, Zurich.

international attention during the Barcelona Olympics and Seville Expo last year: works by Rafael Moneo, Antonio Crux & Antonio Oriz, and Guillermo Vázquez Consuegra in Seville, and by Esteve Bonnell, Enric Miralles, and Albert Viaplana & Helio Piñon in Barcelona. Also shown are works of equal quality by less famous names such as Manuel de la Casas and Juan Navarro.

Victor López Escolano contributes an interesting article describing the political developments that have allowed Spanish architecture to flourish, the process of democratization, and the decentralization of power in favor of regional governments.

The contributions by Capitel and Solà-Morales reflect views from a more limited perspective. Capitel sketches the historic background, constructing an elaborate Charles Jencks-type structure of "isms." Solà-Morales offers ■ short meditation on a favorite local anxiety—relations between center and periphery.

An informed outsider, Kenneth Frampton offers ■ balanced overview of Spanish design. His essay is the centerpiece of the book, a generous and complete analysis that traces the sources of contemporary work in Spain's postwar Modern masters—J. A. Coderch, Alejandro de la Sota, and others. Frampton shows how Modern Spanish architecture's strength and originality derive from ■ short but remarkable local tradition.

Anatxu Zabalbeascoa's *The New Spanish Architecture* is no match for *Building in the New Spain*—either in scholarship or graphic quality. But it does offer ■ selection of lesser-known works, which for patient readers could be a useful supplement to the first book. Zabalbeascoa, an architectural journalist based in Barcelona, worked without the benefit of good translators or a sufficient budget for photographs. So she has opted to include many unbuilt projects and works by young architects in an incomplete survey. Sevillian architecture is absent from the survey and the author's background in the world of Barcelona interiors is evident. But when read along with *Building in the New Spain*, this book can serve as a useful guide.

High Rise: How 1,000 Men and Women Worked Around the Clock for Five Years and Lost $200 Million Building a Skyscraper, *by Jerry Adler. New York: HarperCollins, 1993, 384 pages, $25.*

The high rise in question, in this fascinating tale of high-stakes real-estate speculation, is 1540 Broadway, an office tower designed by Skidmore, Owings & Merrill in Times Square. Author Jerry Adler, an editor at *Newsweek*, follows the genesis, evolution, and realization of a project that seemed like ■ good bet in 1985, but turned out to be a financial disaster when the office market collapsed in the early 1990s.

Invited by developer Bruce Eichner to witness the process of creating a skyscraper, Adler got behind the scenes and was given access to many private meetings. The result is an entertaining recounting of the intricate choreography necessary to assemble the site, program the building, pull together financing, select an architect, develop ■ design, oversee construction, and try to lease 868,000 square feet of office space.
Adler does a good job of showing how all the pieces in this puzzle come together and his gee-whiz attitude toward the size of steel beams, pounds of explosives, number of teamsters, and millions of dollars needed to build a skyscraper is actually refreshing.

The author spends considerable time examining the evolution of the building's design and the different roles played by members of SOM's team and the developer's own staff. While the book's portraits of SOM design principal David Childs and Eichner himself seem sketchy, those of SOM associate Audrey Matlock and the developer's in-house architect Luk Sun Wong are as sharp and engaging as the two people themselves. In fact, one of the best things about this book is the amount of attention it gives to these two "supporting" players, both of whom are shown to be pugnacious and dedicated individuals. The author, though, pulls his punches with Eichner—failing to address questions raised by the developer's brokering the sale of the building to publishing giant Bertelsmann A. G. and then accepting ■ million-dollar consulting contract from that company. *C. A. P.*

Looking Around, a Journey Through Architecture, *by Witold Rybczynski. New York: Viking, 1992, 288 pages, $22.*

Reviewed by Felix Drury

Readers who know Witold Rybczynski's previous books, particularly *Home* and *The Most Beautiful House in the World*, will hear a familiar and friendly voice exposing the flanks of architecture in his new book, *Looking Around*. New readers have the chance to meet a rare soul, an architect who writes about architecture simply and engagingly without the pedantic stress we get from most contemporary critics.

Looking Around is a collection of 35 articles that ran in various publications over the last six years. This gives it both its strength and its weakness. The articles fall into three sections: Homes and Houses, Special Places, and the Art of Building.

In Homes and Houses, Rybczynski has assembled 13 articles dealing with topics ranging from upholstery to Seaside, Fla. In between, the author touches down in suburbia, revisits Moshe Safdie's Habitat, and analyzes the marketing of tract houses. He writes about porches, the idealization of rural life, the flourishing of the "villa," and Ruskin's declaration of the home as a "sacred place." Rybczynski keeps coming back to the relationships between the design of houses and furnishings and the mores of modern and pre-modern life, raising issues that are vital to residential design.

The second section, Special Places, which one expects to be an extension into the public realm of concerns examined in Homes and Houses, turns out instead to be nine disjointed articles—a kind of fruitcake of architectural experiences. Rybczynski begins with a review of the architecture of the McGill University campus, then explores the idea of the art museum and its accommodation of the marketplace. He slips in a curious piece on airports, then goes to the mall. He ends the section by returning to the home/house theme and questioning the untouchable character of houses by famous architects.

The third section is called the Art of Building, which suggests an investigation of the materials and methods of construction. No so. It begins with a brief history of buildin toys and their significance to children, but spends most of its time on questions of styl the role of the client, the limited role of the architect, and the excesses of Postmodernism (there are seven). He ends with the lament that architects and patrons cannot agree on what constitutes good architectur and that the architects of the '90s are likely to be more self-indulgent than ever.

Looking Around is well named. Reading it is like meeting the author every afternoon for coffee and chatting about whatever comes up. It is a very pleasant experience. You have to endure a little repetition and pu up with the author's neoclassic bias. You have to excuse his failure to understand th importance of the iconoclast. But why care! *Looking Around* is informative and delightful: *utilitas* and *venustas*, if not *firmitas*.

Felix Drury is a New Haven architect.

Briefly Noted

ReBuilding, *by Daniel Solomon. New York: Princeton Architectural Press, 1992, 144 pages, $25 (paper).*
"This book is a journal, a monograph, and a polemic," states the author on the very first page. ReBuilding succeeds on all three levels and in the process offers insights on infill housing, town planning, and the relationship between old and new. The journal occupies the first half of the book, entitled "Words," and offers personal observations and anecdotes on such topics as the client-architect relationship, bungalows, taste, courts and alleys, and technology. The monograph section presents 13 projects designed by the author. The polemic, though, suffuses every page and every project. Its message is one of responsible town planning that accommodates the future while [illegible] lessons from the past. C.A.F.

Designing the Office of the Future: The Japanese Approach to Tomorrow's Workplace, *by Volker Hartkopf, Vivian Loftness, Pleasantine Drake, Fred Dubin, Peter A. D. Mill, George R. Ziga. New York: Wiley, 1993, 280 pages, $60.*
This book is the work of a multidisciplinary team that examined the use of innovative technologies in a number of Japanese office buildings. Lots of charts, no color photos.

On Weathering: The Life of Buildings in Time, *by Mohsen Mostafavi and David Leatherbarrow. Cambridge: MIT Press, 1993, 144 pages, $30 (cloth), $15 (paper).*
A fascinating essay supported with photographs and drawings of old and new architecture, this handsome book looks at both the physical and philosophical effects of weathering on buildings.

Spiritual Space: The Religious Architecture of Pietro Belluschi, *by Meredith L. Clausen. Seattle: University of Washington Press, 1992, 208 pages, $50.*
Covering designs spanning more than half a century, this book includes a comprehensive introductory essay and a portfolio of 43 churches and synagogues by one of the Modern movement's innovators in structure and space.

No Way to Build a Ballpark and other Irreverent Essays on Architecture, *by Allan Temko. San Francisco: Chronicle Books, 1993, 271 pages, $15 (paper).*
This collection of 59 articles by the Pulitzer-Prize-winning architecture critic for *The San Francisco Chronicle* spans four decades of writing and a range of both local and universal topics. ■

Small, Sleek, and Smart.



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"Marvin provides the best of both worlds," states Barry. "A complete line of standard products and options plus unmatched custom capabilities." And as Barry soon learned, both disciplines were essential to this project's success.

Contractor Rob Reutenauer and Marvin's representative began by carefully measuring the existing windows; each of which needed to be replaced. And to match the originals, all 20 of them required authentic divided lites.

What's more, when the contractor requested special, extended sill horns, Marvin provided them factory-installed; an accomplishment that added to the authenticity of the windows while reducing the time it took to install them.

The crowning achievement, however, was the home's cupola. This distinctive, Mansard-roofed feature had been totally destroyed by a hurricane in the early 1900s and never faithfully rebuilt. So the architectural team pored over several old photographs of the home and reconstructed the cupola on paper. From those drawings, Marvin crafted four 2' x 5' round



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op double-hungs that are virtually identical to
he 140 year-old originals.

Today, this waterfront residence on Long
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uilder. And further proof that no matter how difficult the demands of
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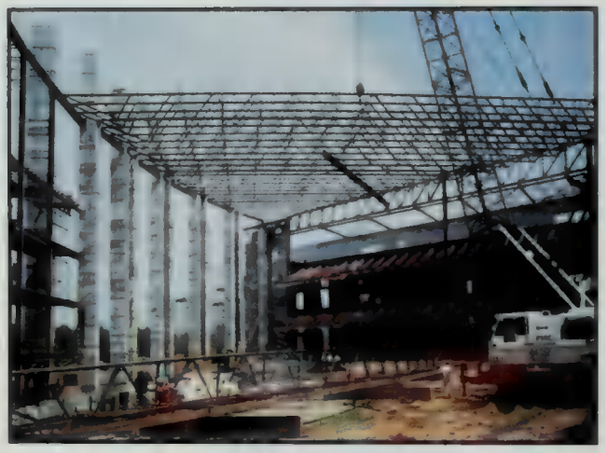
Steel Joists Make It Easier To Build Well For Less

To make building design more efficient, the Steel Joist Institute has provided three new tools: a computer diskette to determine vibration characteristics, the SJI 60-Year Steel Joist Manual, and a Catalogue of Standard Specifications and Load Tables.

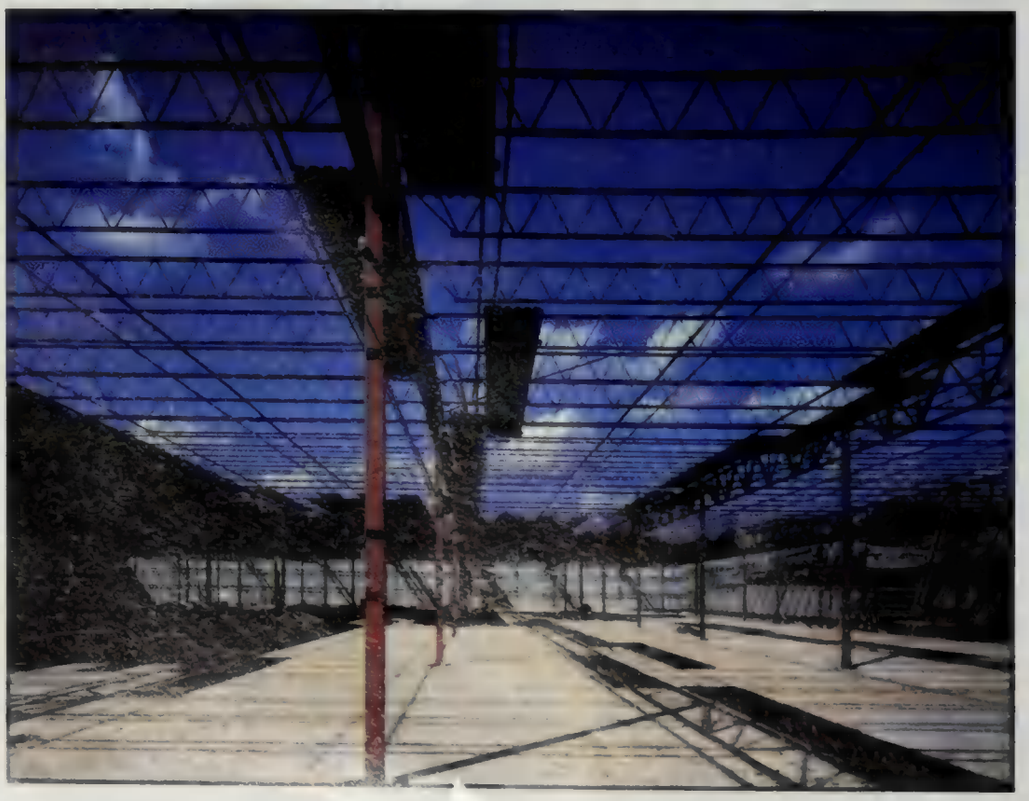
The Steel Joist Institute (SJI) has created a computer program to assist the qualified professional engineer in determining probable vibration characteristics of floor systems using open web steel joists. This program is designed for use in conjunction with the institute's Technical Digest #5 "Vibration of Steel Joist-Concrete Slab Floors."

This program allows the designer to calculate swiftly and easily the frequency and amplitude resulting from transient vibration caused by human activity on a joist-concrete floor. The "what if?" scenario—variations in slab thickness, concrete strength, joist size, joist spacing, floor decking, live and dead loads, span lengths—can be accomplished in seconds.

The program is user friendly, can handle spans up to 100 ft. and can accomplish in seconds calculations that previously required several hours. It is available on 5¼ and 3½-in. disks and is IBM PC compatible. A comprehensive user's manual is included.



Long-span joists provide broad, column-free expanses like the sanctuary of this Charlotte, N.C., church.



Steel joists, steel girders and steel deck make shopping center construction fast and economical.

The SJI 60-Year Steel Joist Manual also now available. The new, 318-pag 60-Year Manual replaces the 50-Yea Digest and features 98 more pages o information. The practical section in th Manual is designed to aid the profes sional by listing four helpful categories:

- The various building document required and what use they can be.
- Building site information and equipmer needed.
- Step-by-step investigative procedures
- Time-saving data for use when analyz ing existing structures.

Another helpful reference that's nov available is the SJI 1992 Catalogue o Specifications and Load Tables. All of th 1992 revisions are prominently listed so that specifiers can review these changes quickly and easily.

The section of fire-resistive assem blies has been expanded and completely revised. It lists the requisite criteria fo using K-series joists in an assembly and includes a simple, five-step procedure fo selecting the proper and most economi cal joist. In addition, the catalogue contains over 75 floor and roof assem blies listed in an easy to use chart fo quick reference, with specific UL designations for fire ratings from one to four hours.

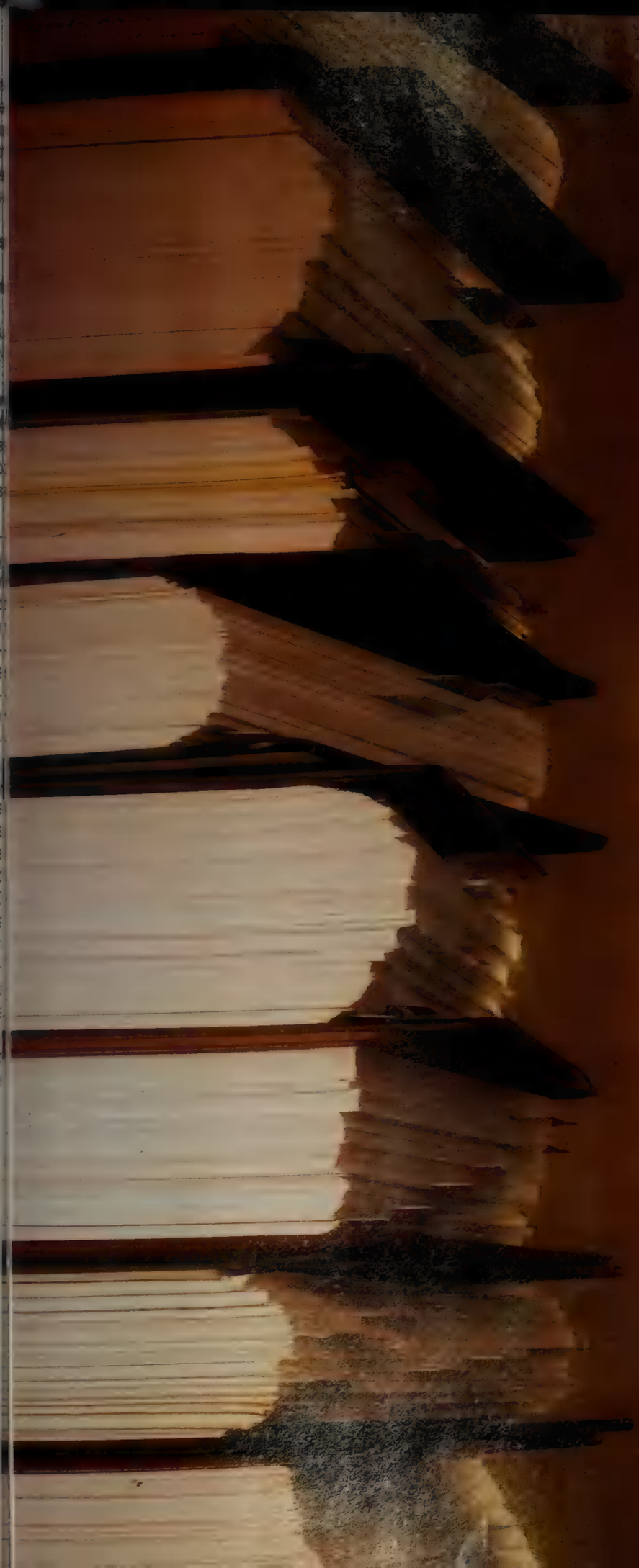
Last year, Underwriters Laboratories Inc. increased the allowable design stress of fire-rated steel joists by 36% for floors and 18% for roofs. The allowable tensile stress of joists used in most fire-rated assemblies has been increased to 30,000 psi for floors and 26,000 psi for roofs, as compared with the previous maximum stress level of 22,000 psi. The new standards now make it more economical to achieve desired fire resistance ratings without added expense for heavier joists.

For information contact the Steel Joist Institute, 1205 48th Ave. North, Myrtle Beach, SC 29577.

Steel Joist Institute Members:

Canam Steel Corp.
Delong's Inc.
East Coast Steel
Gooder-Henrichsen
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The New Columbia Joist Co.
Owen Joist Corp.
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SMI Joist Co.—A Commercial Metals Co.
Socar Inc.
Valley Joist Div./EBSCO Industries
Vulcraft Div./Nucor Corp.

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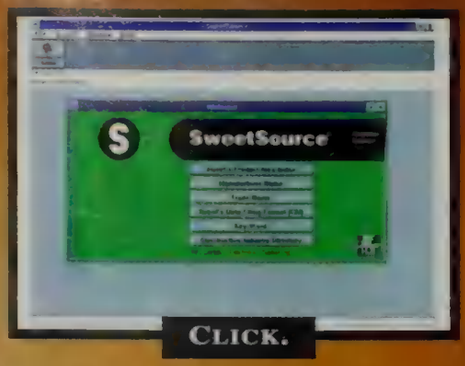
Quick. Find the right prefinished 24-gauge galvanized steel roofing panel.

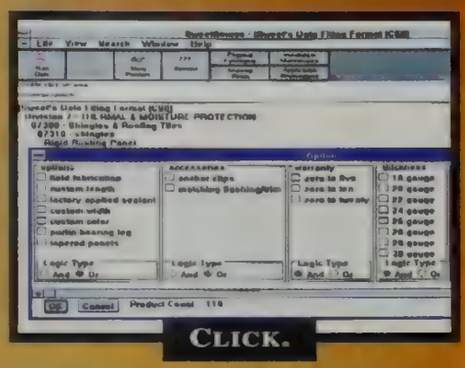

Now.
Try again.

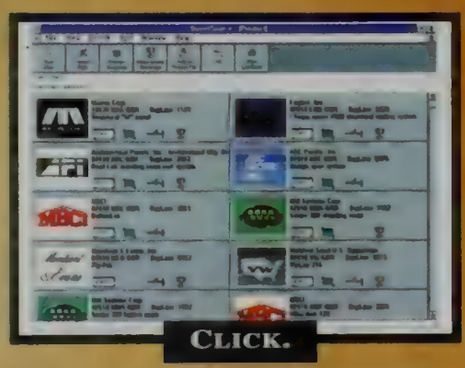
Say you want to find a prefinished, 24-gauge galvanized steel roofing panel with a standing seam and minimum 15-year warranty. You can head for the reference library. Or you can slip in a CD and call up SweetSource.

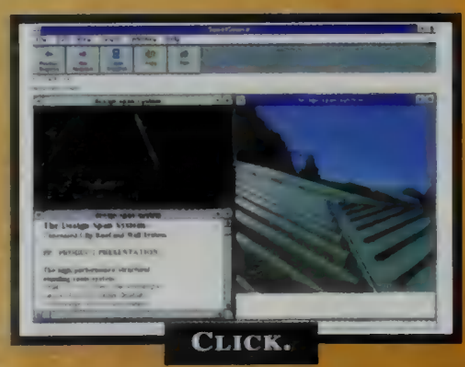
First, select Sweet's Data Filing Format (CSI) from the SweetSource menu and choose Division 7, Thermal and Moisture Protection. A decision tree process helps you quickly narrow your choices. You can select materials, finishes and installation method — even length and width ranges to meet your criteria.

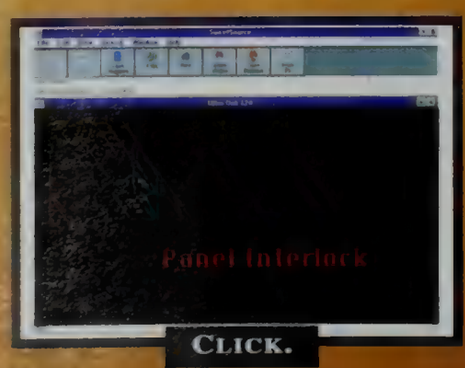
Once you've entered your preferences, you can view and compare product "Snapshots" from various manufacturers. These include color photographs, CAD details, specifications











and technical data, which you can also export to other PC applications for project documentation or client presentations. You'll also find a reference to the pages in Sweet's Catalogs containing printed product information.

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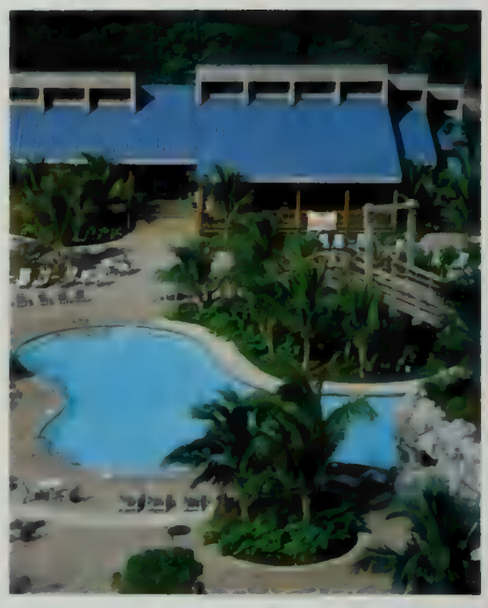
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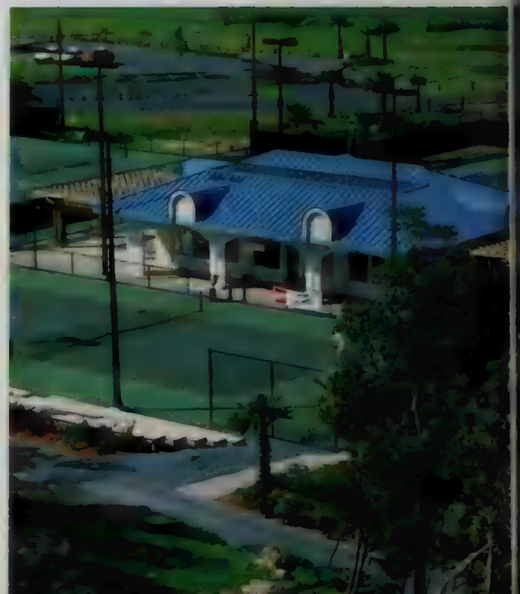
Project: Sugar Bay Plantation Resort ™, St. Thomas, U.S. Virgin Islands / Architect: Archeon Architects, Memphis TN / General Contractor: Centex Rooney, Fort Lauderdale FL









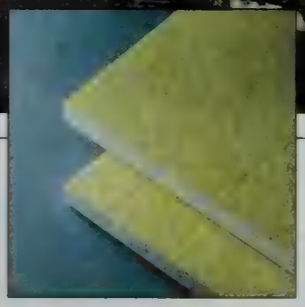


"We chose G-P Dens-Glass® Gold to protect the project from moisture. We were not expecting a hurricane."



–The architects whose "The Point at Poipu" located on Kauai (pictured while under construction) survived Hurricane Iniki





Architect: Group 70 International, Inc. / General Contractor: Fletcher Pacific Construction Company

G-P: You figured you'd use Dens-Glass® Gold to keep moisture out of the condos, and it ends up ...

ARCH: *...helping the condos stand up to hurricane force winds as well. The combination of the synthetic plaster we used and the Dens-Glass Gold gave the condos more structural stability than regular gypsum board could have.*

G-P: You counted on Dens-Glass Gold for protection from sea spray, right?

ARCH: *Yeah, constant sea spray riding in on lovely breezes up to 42 knots. That was a key reason we specified Dens-Glass Gold – paper-face can't touch it for moisture protection.*

G-P: So when Iniki arrived, the condos survived the winds *and* the rain.

ARCH: *Frankly, we were astonished. You know, over 85% of the buildings on the island were damaged. No one would have expected Dens-Glass Gold to withstand that kind of storm. But it is made for high perfromance. Its construction is totally unique. Silicone and fiberglass, right?*

G-P: Silicone-treated core and embedded fiberglass mats front and back, with the gold-colored alkali-resistant coating.

ARCH: *And it's those fiberglass mats that make it more stable than paper-face.*

G-P: By the way, G-P backs Dens-Glass Gold with a six-month limited warranty against moisture deterioration when it's fully exposed to the weather. It's also warranted for 5 years against manufacturer defects.*

G-P: So, you're a pretty satisfied customer?

ARCH: *And you're a master of understatement.*

*For a free brochure on Dens-Glass Gold including warranty information, call 1-800-BUILD GP (284-5347), Operator 730. For technical assistance, call 1-800-225-6119. (In Georgia, call (404) 987-5190.) Look for us in Sweets, Section #09250/GEN.

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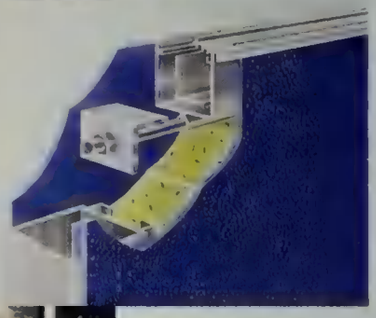
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In This Issue

One of the architect's great challenges is going beyond a building's function to discover its true purpose and express it through form. Somewhere during the complex process of planning circulation, allocating spaces, and calculating structure, the architect must uncover the underlying spirit of a project. For SOM, that meant comprehending the modern corporate culture behind catalog merchandising giant Spiegel and then reflecting that culture in the company's suburban headquarters outside of Chicago (page 68). For Canadian architect Richard Henriquez, it meant exploring the relationship between the natural and the manmade at a new environmental sciences center at Trent University (page 74). Asked to design a new facility for an expanding art department at the University of Toledo, Frank Gehry assembled a glittering academic village of lead-coated copper forms (page 78). In Mexico City, Enrique Norten took traditional elements such as a courtyard and shading devices and modernized them for the French Institute and Cultural Center (page 86). Understanding that one of the essential elements in good housing is a sense of community, the architects of the projects in *Building Types Study 707: Housing* (page 90) also show how much can be done on tight budgets. For James Freed of Pei Cobb Freed & Partners, the challenge was to find expression for the unthinkable: the systematic murder of six million Jews and other innocent people at the hands of the Nazis (page 58). That Freed was able to forge meaning from the Holocaust and bear witness through stone, brick, and glass bespeaks the power of architecture. *C. A. P.*

Manufacturers' Sources listed on page 109

Permanent Witness

United States Holocaust Memorial Museum
Washington, D. C.
Pei Cobb Freed & Partners, Architect
Notter Finegold & Alexander, Associate Architect

© *Jeff Goldberg/Esto photos*







The six-sided Hall of Remembrance, next to the Bureau of Engraving, faces the Mall (top). The 14th Street facade (middle) displays a disturbing Neoclassicism. 1,500 photographs document prewar life in the Polish shtetl *of Ejszyszki (opposite).*

early visitor to the United States Holocaust Memorial Museum mmented, "I never thought I could be so affected by architec- re." If others share this view, James Ingo Freed, partner at Pei bb Freed, will have succeeded in a daring strategy. He sought thing less than to use the very fabric of a building to convey the iminality of the systematic, industrialized extermination of some x million Jews and other so-called enemies of the Nazi state. Freed d other options. He could have designed a dignified, neutral con- iner, suited to its site adjacent to the Washington Mall. Others orried that architecture could only prettify this searing historical ent. Don't risk trivializing the memory, they argued. They said reed should at best put the museum underground, perhaps mark- g it with some greenery.

reed shared many of these misgivings, but after a visit to some of e death camps, he began to feel that the architecture of the Memo- al could embody the deliberateness and frightening efficiency with hich the "final solution" was carried out. The building's external rm hints at this strategy, while respecting its surroundings. The parently deferential yet disconcerting monumentality of the 14th treet entrance "gives you a premonition of loss," says Freed. In the all of Witness, the central space around which the museum is orga- zed, the architecture metaphorically moves the visitor from the ealistic precincts of the Mall to the horror of the Holocaust.

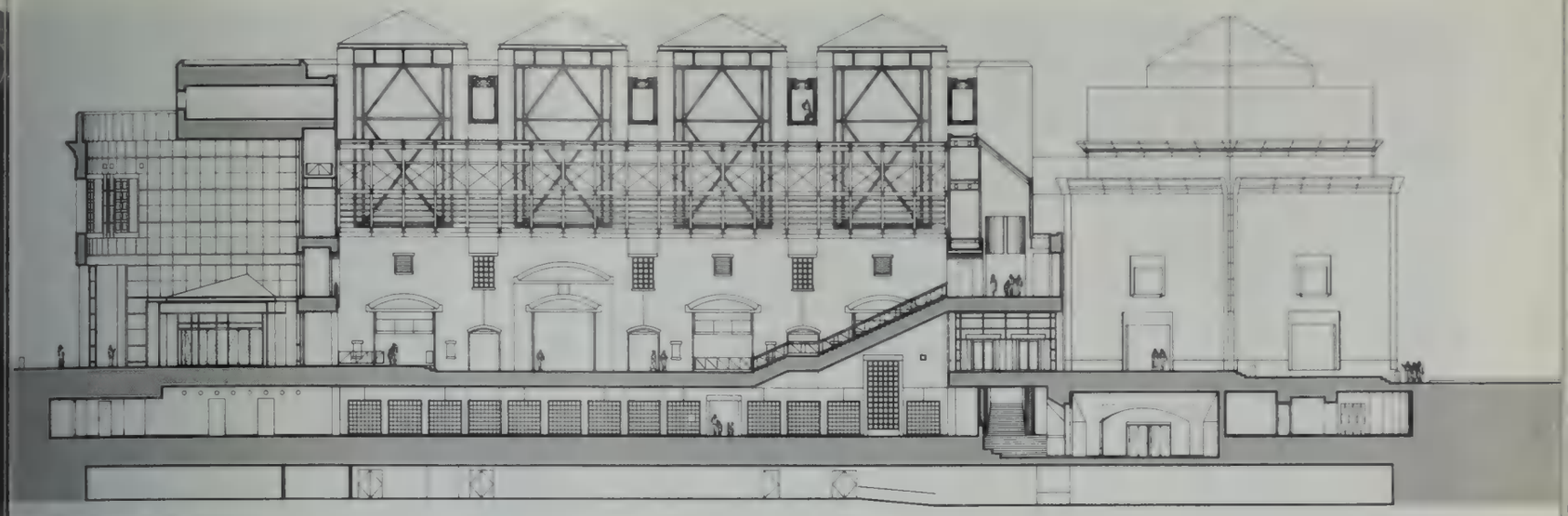
reed, a man used to turning technology to good ends, was particu- rly affected by the Nazi's twisting of the instruments of modern fe—medicine, law, engineering—to the manufacture of annihila- on. Visitors see in the exhibits what Freed saw: the handsome yet illing wood trusswork of a bridge meant to separate Jew from entile; an ordinary boxcar once used for death-camp transports; the anufacturer's trademark on oven doors that cremated thousands. s the visitor repeatedly encounters the Hall of Witness in the pro- ss of passing from one side of the building to the other on isturbing yet beautiful glass bridges, one sees in Freed's brick and eel a permanent reminder of industry's collusion. For all its appar- nt success (visitors seem enormously moved, and linger at each splay), this approach has pitfalls. The menacing imagery is some- mes at war with the elegance of Pei Cobb Freed's flawless etailing. (Some argued, according to exhibit designer Ralph ppelbaum, that the museum should have been much rougher, even reating physical discomfort among visitors.) Freed's most literal mbolism risks being theatrical or trivializing: *Stalag 17* ght-fixture louvers or an armor-plated information desk.

lacing the museum facing the tidal basin in the heart of monumen- l Washington was a controversial decision (see page 66 and ECORD, April 1988, page 65). Freed wanted his building to live up to e site and the nation's commitment, even cause people to take ac- on. At the Memorial's dedication, survivor and Nobel Laureate Elie iesel pleaded with President Clinton—sitting only a few feet way—to "do something to stop the bloodshed in [former Yugosla- a]." This moment, broadcast around the world, held the power it d because Wiesel was standing in front of this 285,000-square-foot ass of brick, steel, and limestone. *James S. Russell*

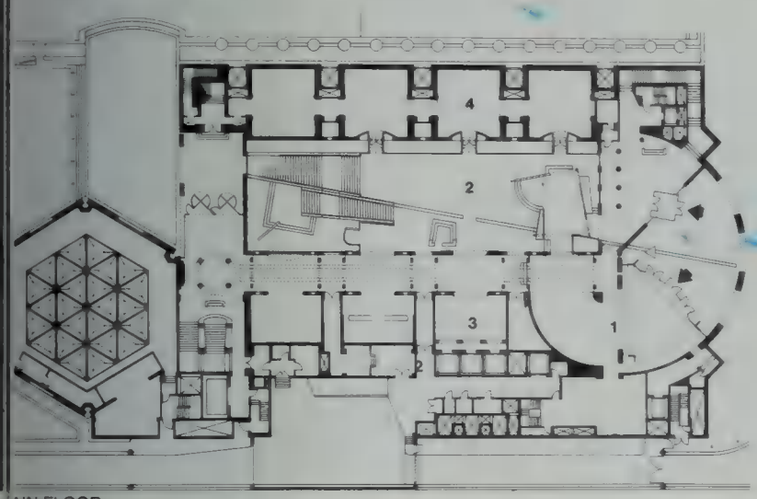




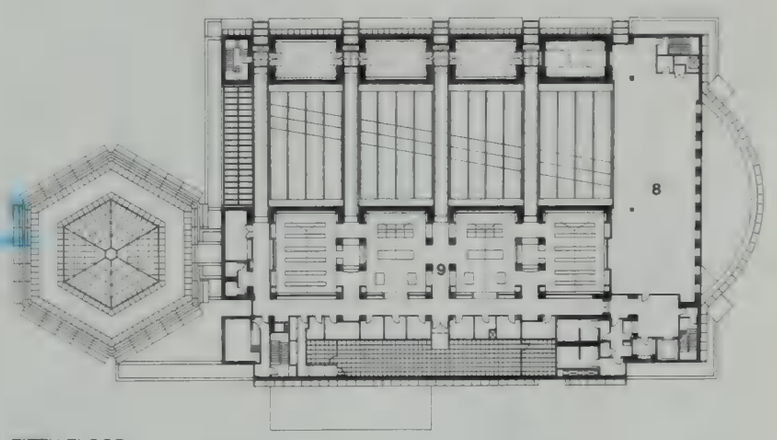




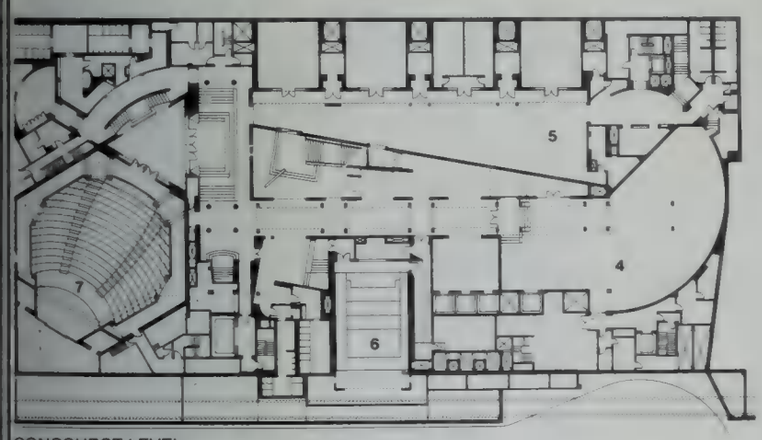
CTION LOOKING SOUTH



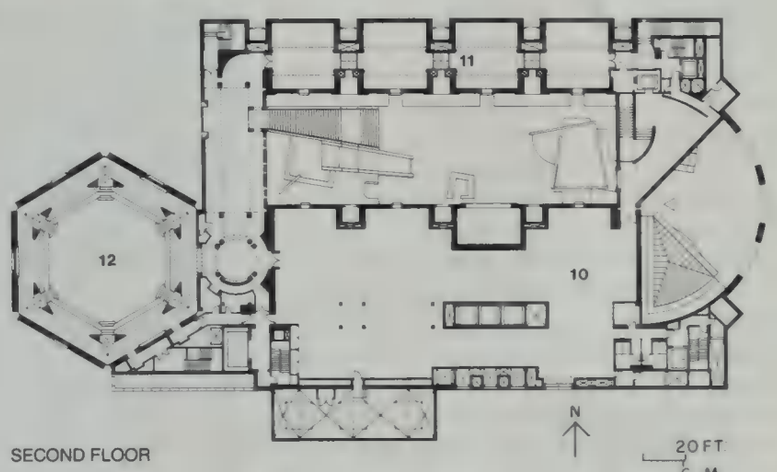
AIN FLOOR



FIFTH FLOOR



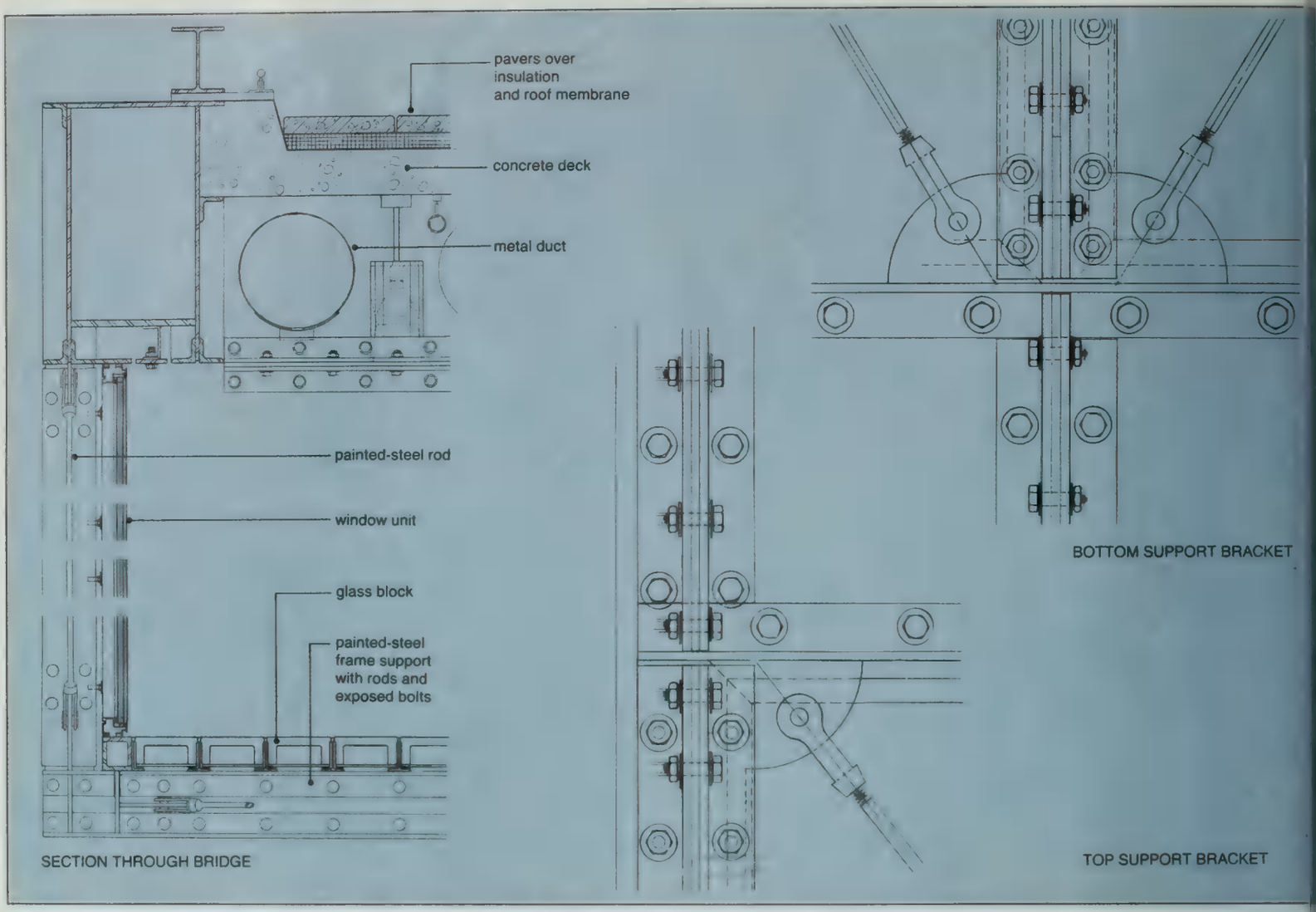
CONCOURSE LEVEL



SECOND FLOOR

1. *Entrance lobby*
2. *Hall of Witness*
3. *Elevators to exhibits*
4. *Temporary exhibits*
5. *Education center*
6. *Cinema*
7. *Meyerhoff Theater*
8. *Administration*
9. *Library/archive*
10. *Permanent exhibit*
11. *Learning center*
12. *Hall of Remembrance*

n the Hall of Witness (oppo- ite), rough brick suggests the imps; metal strapping resem- les that of the crematorium vens, and all is crowned by a kewed skylight. Exhibits begin n the fourth floor (not shown; it and the third floor are similar to the second, above), and glass bridges carry visitors around the Hall of Witness to towerlike galleries laid enfilade. After pausing in the contemplative Hall of Remembrance, a monumental stair returns visitors to the Hall of Witness (opposite bottom left). Another stair descends past a Richard Serra sculpture (Gravity, *opposite bottom right) to concourse level.*

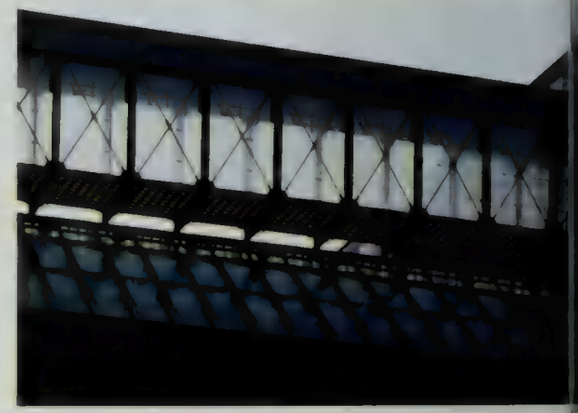


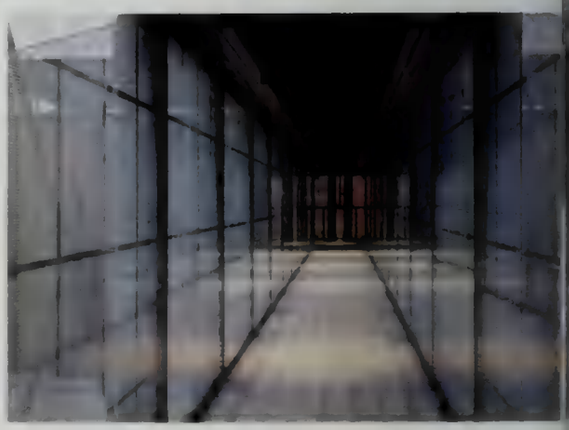
The bridges

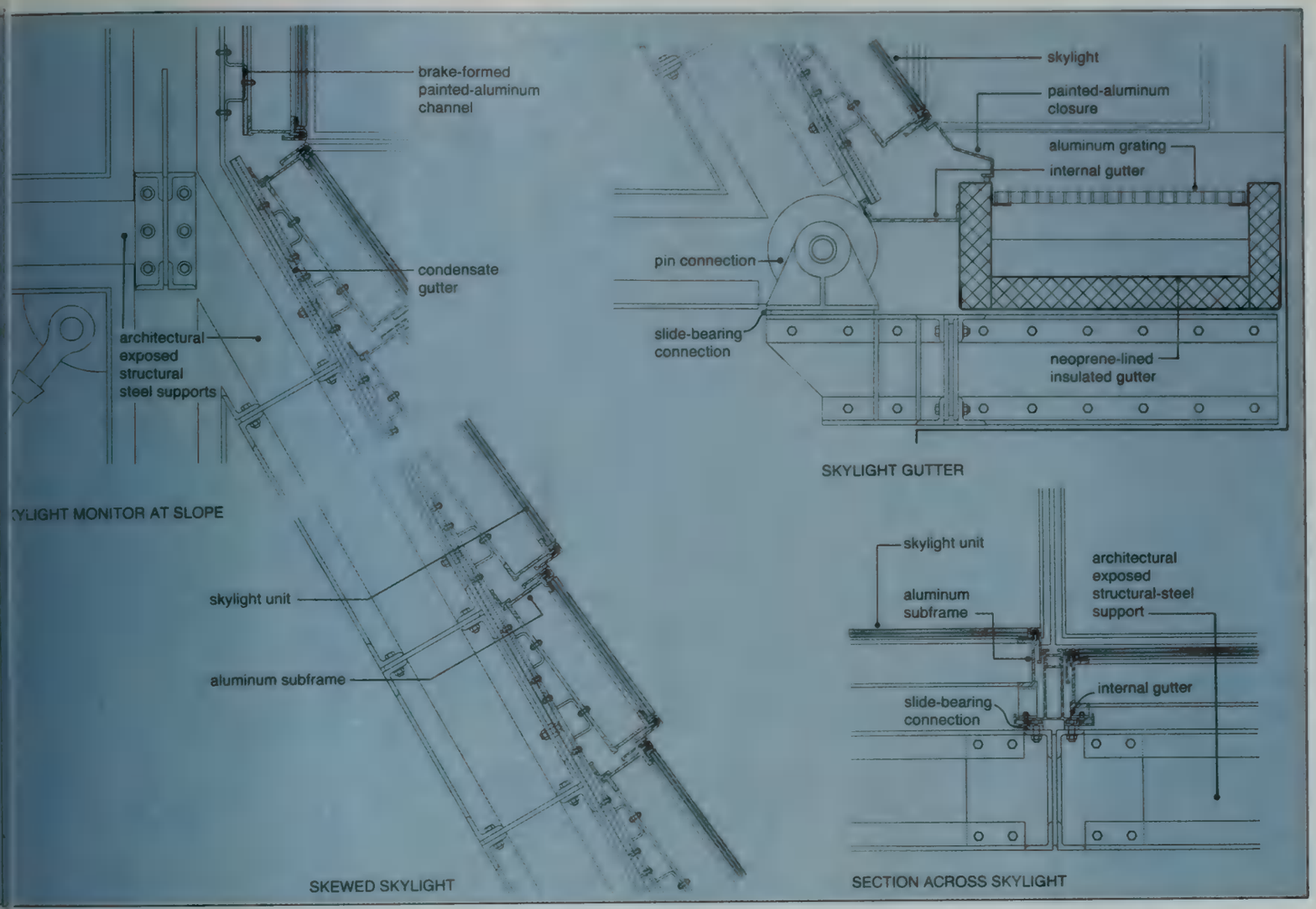
To the architect, the building's power derives from its permanence and the thoroughness of its detailing. "So much of the museum is documentary or photographic," says Freed, "you want to put the person in touch with real materiality." To him, among the chief horrors of the Holocaust was the industrialized methods it employed. With engineers Weiskopf & Pickworth, the firm designed "architectural" structural steel as framing for bridges and a giant skylight. Rather than use today's large welded-steel sections, the architect and engineer built up bars and angles into large, exposed framing members fastened with bolts and trussed with tie rods. These techniques are rarely used now, but recall the railroads and other industrial structures that made Kahn

ing on the scale of millions possible. Even if visitors don't read the specific metaphors that drove the design, Freed feels that they will recognize that this is "an emotion-driven building."

Within the bridges, light fixtures, sprinkler pipes, and ducts run exposed under a visible concrete-slab roof. As visitors exit a segment of the museum devoted to suppression and ghettoization, they encounter the first names of victims fused into the bridge's glass walls using ceramic frit. The places of origin of those who went to the death camps are emblazoned on another bridge. Glass block floors convey a disquieting fragility to those walking across while casting shadows on those passing below.











The skylight
Drawn at an angle across the rectangular Hall of Witness the glass roof resolves its geometries through warped surfaces (far left). According to Jack Greenberg of subcontractor Architectural Glazing, "we had to calculate the elevation at every corner of every panel while making a constant increment of [elevation] difference between each unit." The depth of aluminum supporting channels varies to position the glazing. The channels are isolated from steel framing by Teflon bearing pads. Structural butt-glazing holds laminated glass to aluminum subframes. The glass units are capped by an extruded ring, and weather-sealed. A similar technique was used to bridge the gap between units.





lvised by a committee of both rvivors and scholars, cura- rs and designers divided the hibits into three segments, 33-1939, 1939-1945, and 45-present—each occupying e floor. These dispel any reconceived notion that the sitor will be exposed only to e Holocaust's most horrific pects. Instead, the exhibits rsuade largely through otos and films of faces— ces in the ghettos, faces on entity cards, faces of people rced to flee or march. The few tual artifacts ("the contents people's pockets," says terpretive designer Ralph ppelbaum) thus take on unex- cted power. The exhibits nflinchingly remind us that mankind's obligations are ot just historical: The debate er whether to bomb the death mps resonates as if it were curring today. On the third or (top right) curators have assembled parts of a bar- cks from Auschwitz- rkenau. Low walls sur- unding a kiosk permit sitors to choose whether to ew films showing the muse- n's most grisly images.

brick portal (opposite) leads sitors exiting exhibits back to e Hall of Witness. Framed in ainless steel and faced with nestone, a blind "window" bove) gives visitors only impses of the Mall outside. ght: the Meyerhoff Theater.





Interview

Excerpts from an interview with Edward T. Linenthal, a professor of religion and American culture at the University of Wisconsin, Oshkosh, who is completing a history of the U.S. Holocaust Memorial Museum.

RECORD: Some said that America was not the place for this Memorial . .

EL: Having a memorial on American soil was for many survivors a final affirmation by the U.S. government that the Holocaust happened, that it is recognized. I think there is an element of America doing penance for not recognizing the event while it was happening. Where it is has a tremendous impact on the stature of the memory.

RECORD: Critics said the Memorial should have had a wider focus.

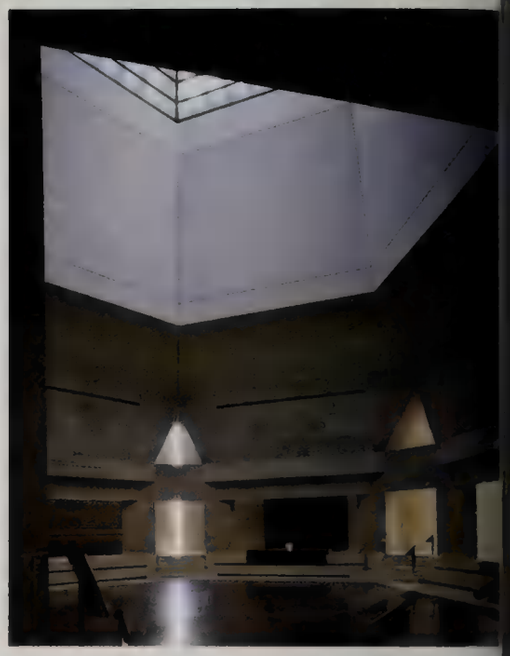
EL: The big question was, is this about the six million Jews or the Jews plus the five million others? Elie Wiesel saw European memorials when remembered "Polish" victims and "socialist" victims, but didn't mention Jewish victims. Distinctions are important here. Some unresolved tension remains, but clearly the argument made by the Memorial is that the six million Jews are at the center of the story. It becomes universal in understanding the particularity of the six million with reference to other victim groups.

RECORD: Wasn't Pei Cobb Freed's design controversial?

EL: Freed wanted the building to be a good neighbor, but believed it couldn't just exist as squeezed between its site lines, so the Hall of Remembrance protruded a few feet [toward the Mall]. The Fine Arts Commission forced it back to the line. Freed had bricked up windows in the Hall of Remembrance, reminiscent of the Warsaw ghetto. Some commissioners opposed that because it didn't offer a hopeful story on the Holocaust. The essential conflict was whether you need to have a redemptive message. Freed wants to displace visitors from Washington, he wants to immerse them in the world of the Holocaust, and return them changed. He says he didn't know how to design for hope. Some commissioners asked for what Lawrence Langer, a professor of English who analyzes Holocaust literature, calls preferred narratives—you make it more acceptable. In a kind of compromise, Freed took out the brick and installed limestone. It's still a blank window, but it doesn't evoke the ghetto.

RECORD: Is architecture an appropriate medium for a statement on the Holocaust?

EL: You don't have here an empty or neutral shell, but two embodied statements about the Holocaust, Freed's statement and the permanent exhibition. Some have said there is a danger that people will get swept up in the excellence of the building, that it is a magnificent cathedral-like building. In this problematic in its own way. There had been suggestions that no building could be appropriate, that no design would be an eloquent enough statement.



After viewing the exhibits, patrons linger in the six-sided Hall of Remembrance (above). They may stroll an ambulatory (opposite) or pause to light candles in niches set into the limestone walls.

Credits

The United States Holocaust Memorial Museum, Washington, D. C.

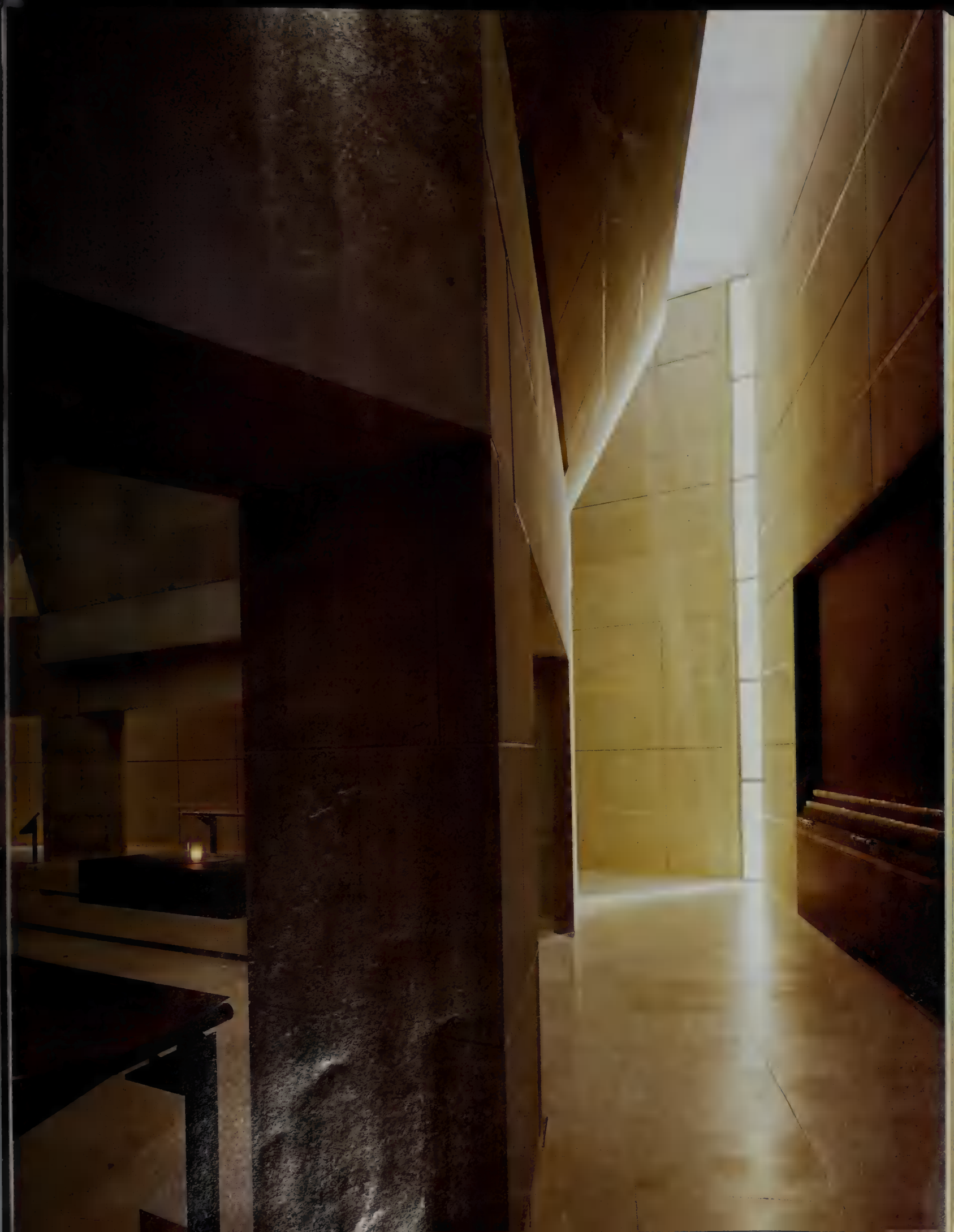
Architect: *Pei Cobb Freed & Partners—James Ingo Freed, partner-in-charge/design; Werner Wandelmaier, Michael D. Flynn, partners; Craig Dumas, Beatrice Lehman, associate partners; Michael Vissichelli, Harry Barone, Wendy Evans Joseph, Marek Zamdmer, senior associates; Jean-Pierre Mutin, Stephen Ohnemus, Alissa Bucher, Abby Suckle, Debora Campbell, associates; Jou Min Lin, Anne Lewison, Jeff Stumacher, Steven Valentine, Jeffrey Rosenberg, Leslie Neblett, Ray Lee, Howard Settles, Fritz Sulzer, Gianni Neri, Christine Mahoney, Jennifer Adler, Paul Albrecht, Marcos Alvarez, Giovanna Brancaccio, Quin Chen, John Coburn, Monica Coe, Karen Cox, Steven Derasmo, Paul Drago, Richard Dunham, Richard Gorman, Rossana Gutierrez, David Harmon, Reginald Hough, Kevin Johns, Jennifer Nadler, Michael Ngu, Camillo Rosales, Amiel Savaldi, Emily Sidorsky, Mercedes Stadthagen, Deborah Taylor, Hieu Vuong*

Associate Architect: *Notter Finegold & Alexander—George Notter, partner-in-charge; Manuel Almagro, project manager*

Engineers: *Weiskopf & Pickworth—J. Richard Savignano, associate (structural); Cosentini Associates (mechanical/electrical);*

Consultants: *Rolf Jensen & Associates (life safety); Jules Fisher/Paul Marantz (lighting); Jaffe Acoustics*

General Contractor: *Blake Construction Company*



Two Faces Forward

Spiegel Corporate Headquarters
Downers Grove, Illinois
Skidmore, Owings & Merrill, Architect



The form and colors of Spiegel's new headquarters by SOM are context derived. They build a powerful corporate image while reaching out to acknowledge both a nearby forest and Chicago's architectural heritage.

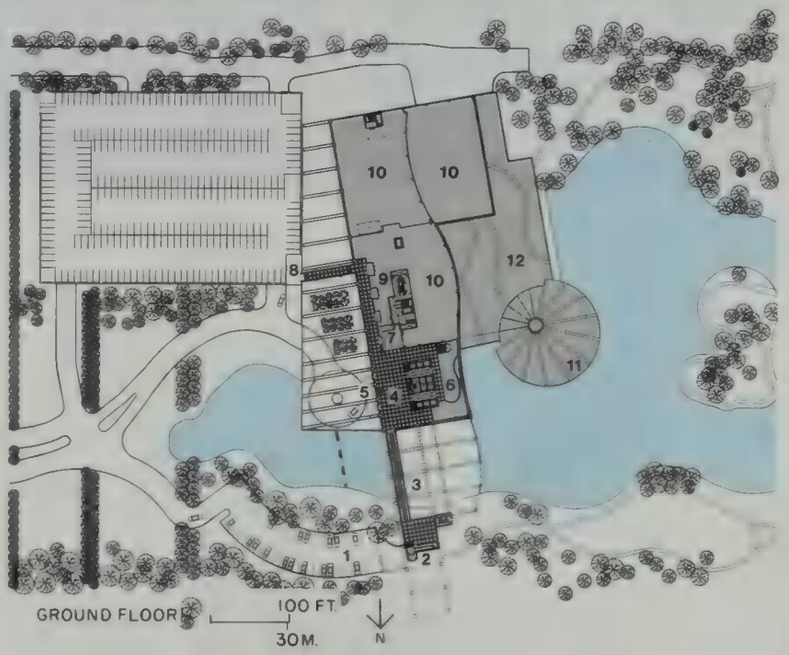
The new corporate headquarters building outside Chicago for the catalog-merchandising giant Spiegel is striking, and intended to be so. "Spiegel's management team wanted a building that would clearly demonstrate that Spiegel is on the leading edge, not formal or staid, but dynamic, energetic, and positive," says Skidmore, Owings & Merrill design partner Joseph Gonzalez. SOM delivered what they wanted: a vertically layered 13-story building which delivers that strong corporate image, but goes beyond.

"The building has three layers," continues Gonzalez, "office layers on the east and west, separated by a service layer." All are distinctly different in plan and elevation; all are oriented along a north-south axis. Because the east layer faces two major expressways heading to and from Chicago, "I wanted it to be a tribute to the 'Chicago Frame,' Chicago's strong tradition of structural expression," he says. Gonzalez used sandblasted, white precast concrete framed by polished, gray granite to outline the formal grid, which in turn frames reflective glass. The service layer behind it is expressed as a "bar" of reflective glass. Out of the top of this bar rises a pair of spires, used as installation points for telecommunications antennas.

The west layer of the building is much less formal. Its elevation (opposite page) is oriented toward the Hidden Lakes Forest Preserve, so the structural grid that dominates the east face of the building is replaced here by a light grid of mullions, and alternating horizontal bands of green vision glass and darker green glass ceramic spandrel (actually reminiscent of SOM's Lever House, built in 1952). In plan, this side of the building takes a naturalistic, shallow wave form, similar to the site's own gently rolling topography.

A storm-water retention pond flows from the access road and visitors' parking in front of the building, under the building itself, and around the circular-shaped cafeteria. Even the landscaping echoes the formal and informal nature of the site: short grasses are planted toward the expressway, and maintained in a traditional manner. On the other side, an informal meadow of tall grasses links the building with the forest preserve.

"The floor plate of the building is quite large—46,000 square feet—in response to the client's desire to keep the building as horizontal as possible and limit the number of floors," says Gonzalez. "This also allows sweeping views of the forest preserve." *Charles D. Linn*



1. *Visitor parking*
2. *Visitor entry*
3. *Bridge*
4. *East lobby*
5. *Main entry*
6. *West lobby garden*
7. *Reception*
8. *Employee entry*
9. *Display cases*
10. *Sample room*
11. *Cafeteria roof*
12. *Sample room roof*

The east facade of the Spiegel building (below) faces two major expressways, and acts as the entry side of the building as well. The formal, structural grid is precast concrete, outlined by polished granite. The reflective glass skin of the service layer of the building, visible in the upper left corner of this facade, also sprouts telecommunications antennas. The landscaping on this side of the building is very formal, in keeping with the rigidly forma character of the facade.

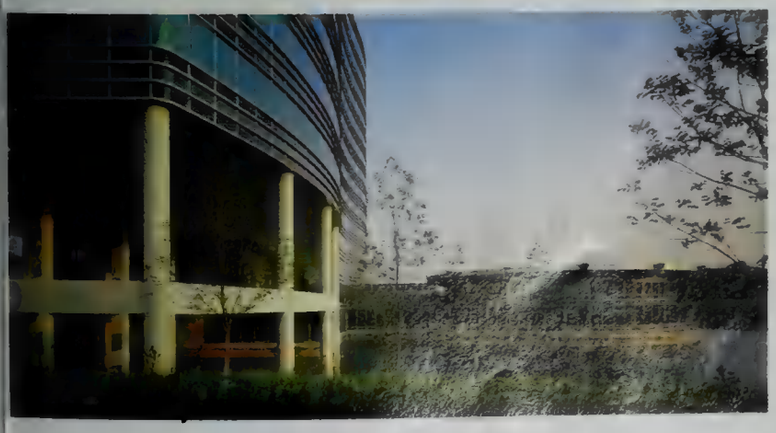
The west facade of the building (top, opposite page) faces a forest preserve, and is more informal. Its structural grid is barely expressed behind a curtain wall of gently curving green vision glass and spandrel. A storm-water retention pond extends from the entry

Jon Miller, Hedrich-Blessing photos



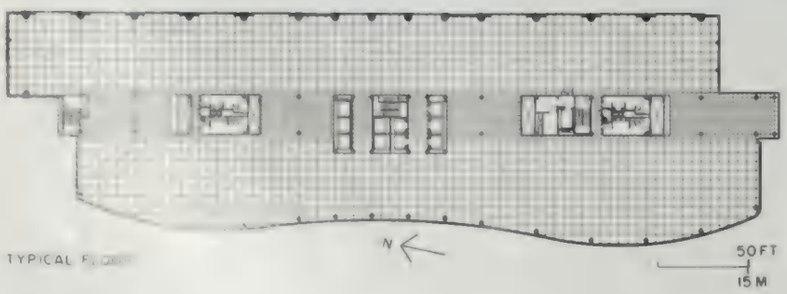
rive in front of the building, eneath the building and into larger pool that surrounds he circular employee cafeteria elow). In order to extend he atmosphere of the nearby orest onto the grounds, land-caping on the west side of the uilding is far less formal than n the east side, using native lant materials.











Interior Spaces International was Spiegel's original consultant on the building, and was involved from the project's inception. ISI assisted Spiegel in making key decisions, from site selection to choosing SOM as the architect, according to ISI design team member Mark Demsky.

The airy, daylit public lobby and interior spaces designed by ISI (left and opposite right) are richly detailed, using black and green terrazzo flooring, anigré wood strips with pear wall panels, chrome, and drawn glass. A video wall (top left), consisting of 36 monitors, displays products and services offered by Spiegel.

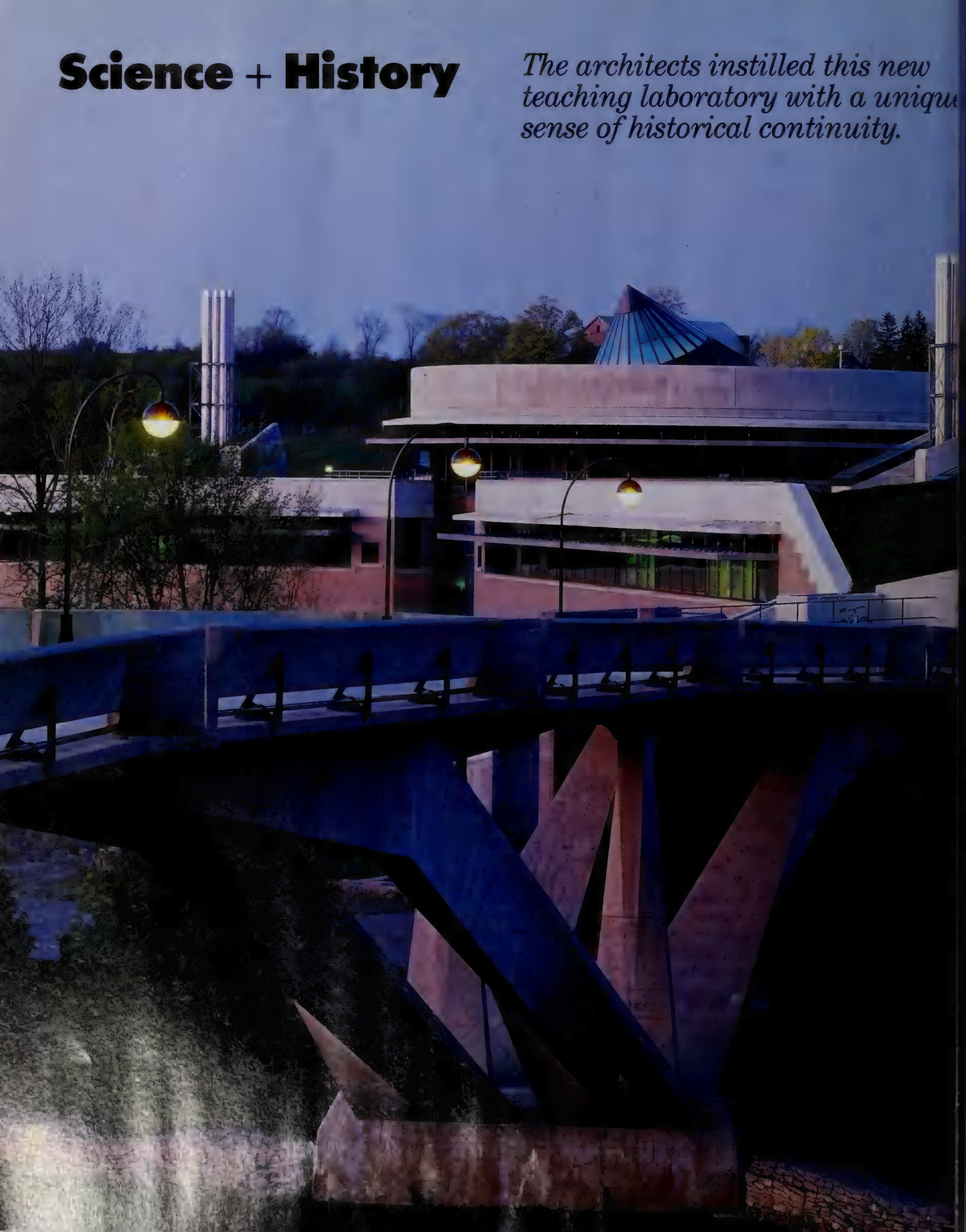
Credits

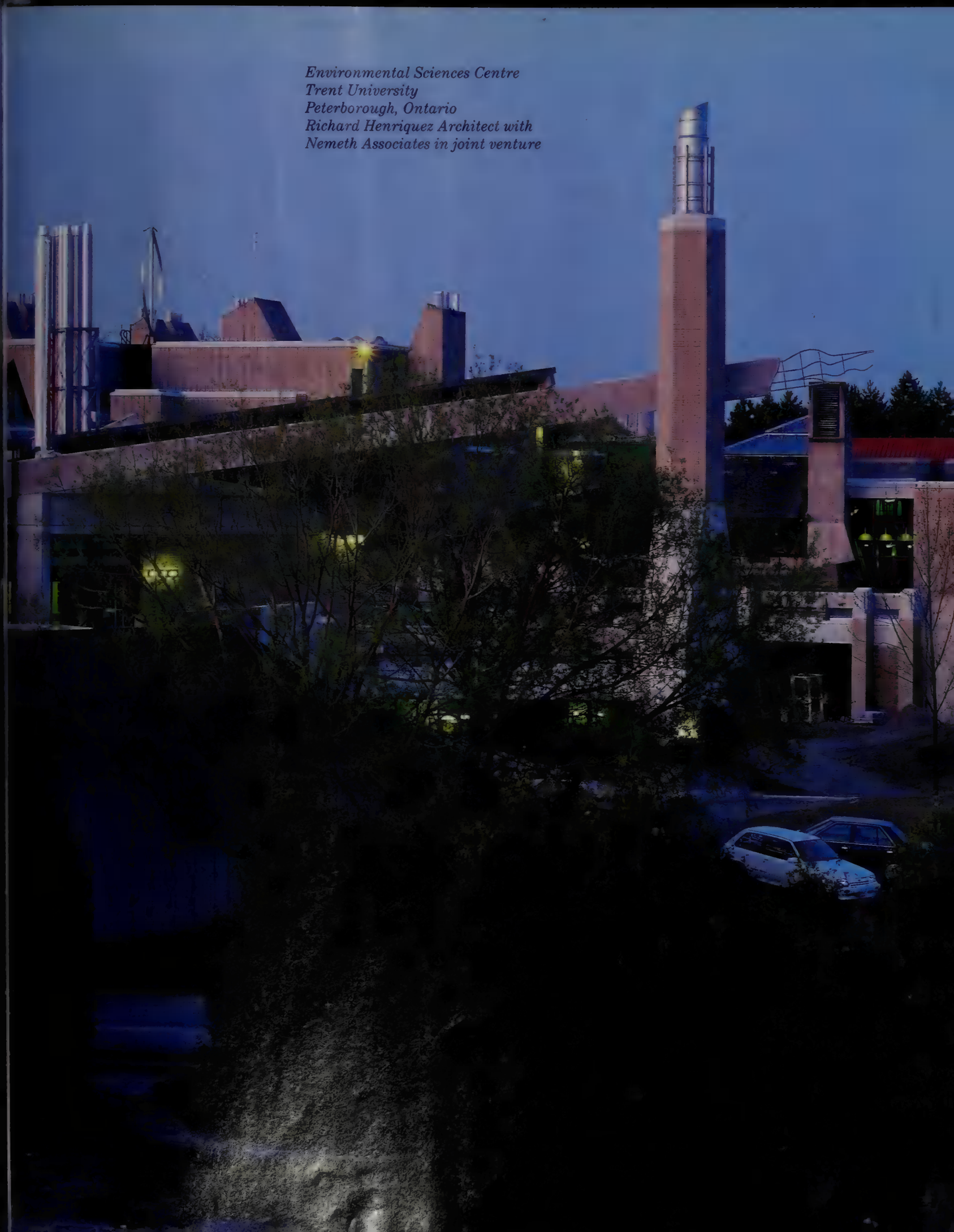
Spiegel Corporate Headquarters
Downers Grove, Illinois
Owner: *Hamilton Partners*
Architect: *Skidmore, Owings & Merrill—Joseph Gonzalez, partner-in-charge; Alan D. Hinklin, project director; Peter Brinkerhoff, senior designer; William Larson, project manager; Bernie Gandras, technical coordinator*
Interior Designer: *Interior Space International—Gary Lee, principal-in-charge; Scott Thomas, project manager; Tim Salisbury, project technical*
Engineers: *Skidmore, Owings & Merrill—Srinivasa Iyengar/William Baker (structural); Raymond Clark (mechanical)*
Consultant: *Horton Lees (lighting)*
General Contractor: *Pepper Construction*



Science + History

The architects instilled this new teaching laboratory with a unique sense of historical continuity.





Environmental Sciences Centre
Trent University
Peterborough, Ontario
Richard Henriquez Architect with
Nemeth Associates in joint venture

Architect Richard Henriquez views his firm's work as part of an historic continuum with meaning in both natural and man-made phenomena that have occurred in the past and will recur in the future. For this reason, this design for an environmental-sciences teaching and research building at the 3,600-student Trent University in Ontario incorporates many unexpected elements and seems, at first glance, to be unusually complex.

A second look reveals that, on a functional basis, the planning and construction of this $18-million, 80,000-square-foot, concrete-frame and brick-faced, concrete-block structure is far more straightforward than its elements would indicate. Most spaces are logically arranged in two basically rectangular wings. At ground level (plans, opposite), offices against exterior walls surround interior research labs, where light, ventilation, and other working conditions can be best controlled. Multiple fume-hood types required for different laboratories result in the many stacks or "spires" that sprout from the roof. Easily maintainable finishes include paint on concrete-block walls and liquid-applied epoxy on concrete floors. Corridor ceilings between offices and labs carry ducts and other mechanical equipment, exposed overhead for ease of servicing. Mechanical rooms and storage are also located at this level.

On the concourse level, rooms are larger and have generous windows, with most spaces looking outside. They include classrooms for the various disciplines of biology, physiology, geography, and environmental-research studies, along with support spaces and offices for the dean and respective chairpersons of the various departments. These offices are grouped around the rotunda and along the corridor leading east from it toward an older science complex (top of floor plans).

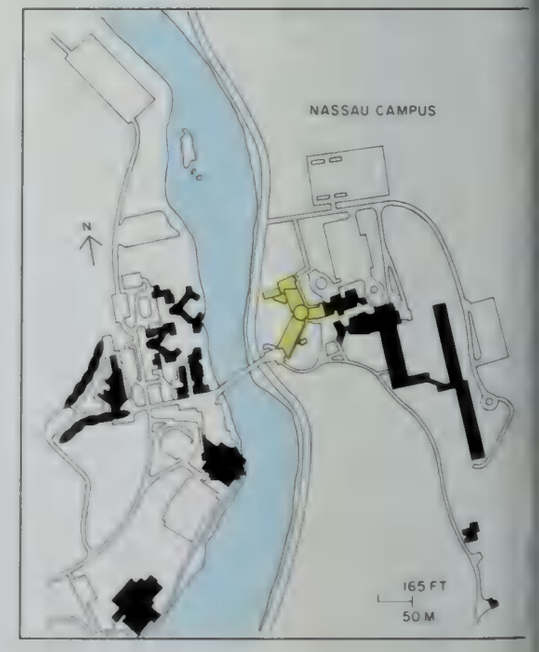
In a larger context, the new building not only extends the science complex, but also completes an elevated pedestrian passage between the older buildings and a bridge (foreground of photo, previous page; right in plans) across the Otonabee River to the rest of Trent University's "communities." These are grouped according to a 1963 master plan by architect Ron Thom, who went on to design many of the campus buildings in a vocabulary of massive-appearing masonry walls separated by deep-set recesses. The master plan, which mixed housing, research, and academic facilities together, seemed revolutionary after World War II when the race was on to build innovative new campuses appropriate for forward-looking times.

Henriquez's interest in historic context is so strong that, if lacking, he reportedly invents it. This was unnecessary at Trent. He had rich, raw material including Thom's master plan and early buildings. While Henriquez and joint-venture architects Nemeth Associates "reinterpreted" both that plan and Thom's design language, they have used specific literal elements from Thom's sketches such as the sloped walls at the end of the bridge (photo opposite, left). These contain bermed earth leading to a sod roof above the concourse level. It replaces the original field on the site—once inhabited by groundhogs, who may one day climb the berms to occupy the new "field." Henriquez says this design expresses, "humanity's need to abdicate to the domination of nature." A salvaged section of track from a railroad line that ran through the site (top of floor plan, right) expresses its original course in a wedge-shaped split between the new building and existing ones. It is in the rotunda (bottom photo, right) that Henriquez's ideas of historic continuity are most strongly [illegible]. It is roofed above by a "ceremonial sphere" representing [illegible] perception of finite global resources. *Charles K. Hoyt*

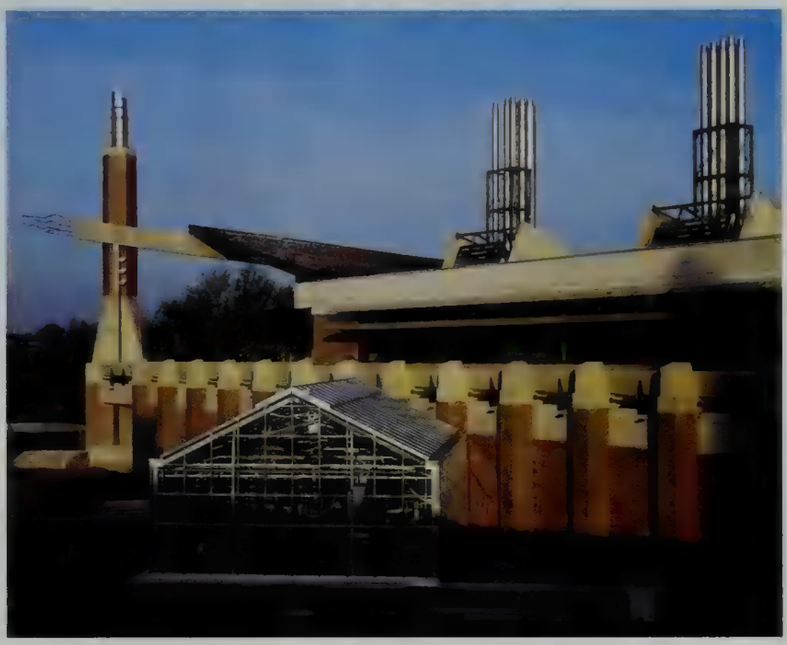
© *Steven Evans*









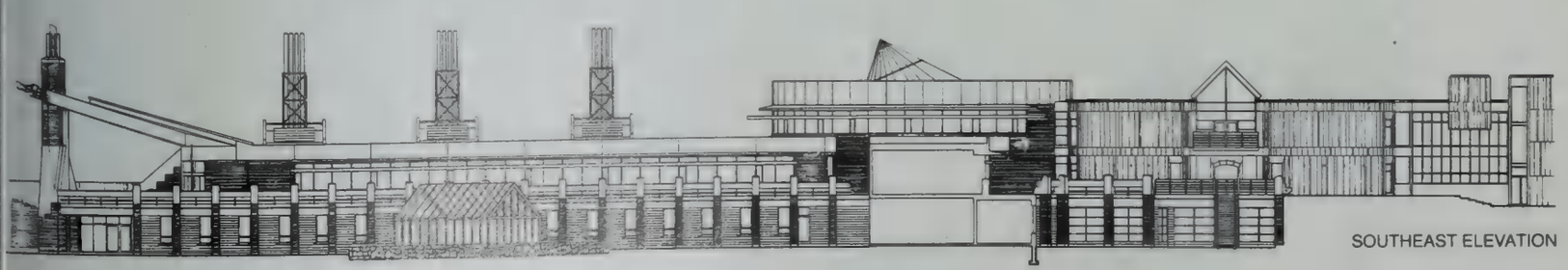




"Green" elements include wood sunshades and a sod roof for added thermal protection. A pointed skylight tops the rotunda (top left) and is tipped to align with the earth's axis. Exposed reinforcing rods mimic a dragon's head (top right) on a beam forming a campus gateway.

Credits

Environmental Sciences Centre, Trent University, Peterborough, Ontario
Owner: *Trent University*
Architects: *Richard Henriquez Architect/Laszlo Nemeth Associates in joint venture—Richard Henriquez, Laszlo Nemeth, Ivo Taller, Madgi Tawadros, Glen Gallagher, Guillaume Asselin, Andrew Baczynski, Cameron Halkier, Gregory Henriquez, Katalin Horvath, Jim Nicholls, Bill Pechet, Helen Quan, Doug Ramsay, Frank Stebner, Tony Griffin, Stuart Roy, Craig Higham, David Harding, Michael Kothke, project team*
Engineers: *M. S. Yolles & Partners (structural); The Mitchell Partnership (mechanical); Mulvey & Banani International (electrical)*
Consultant: *Cornelia Hahn Oberlander (landscape)*
Contractor: *Ellis-Don*

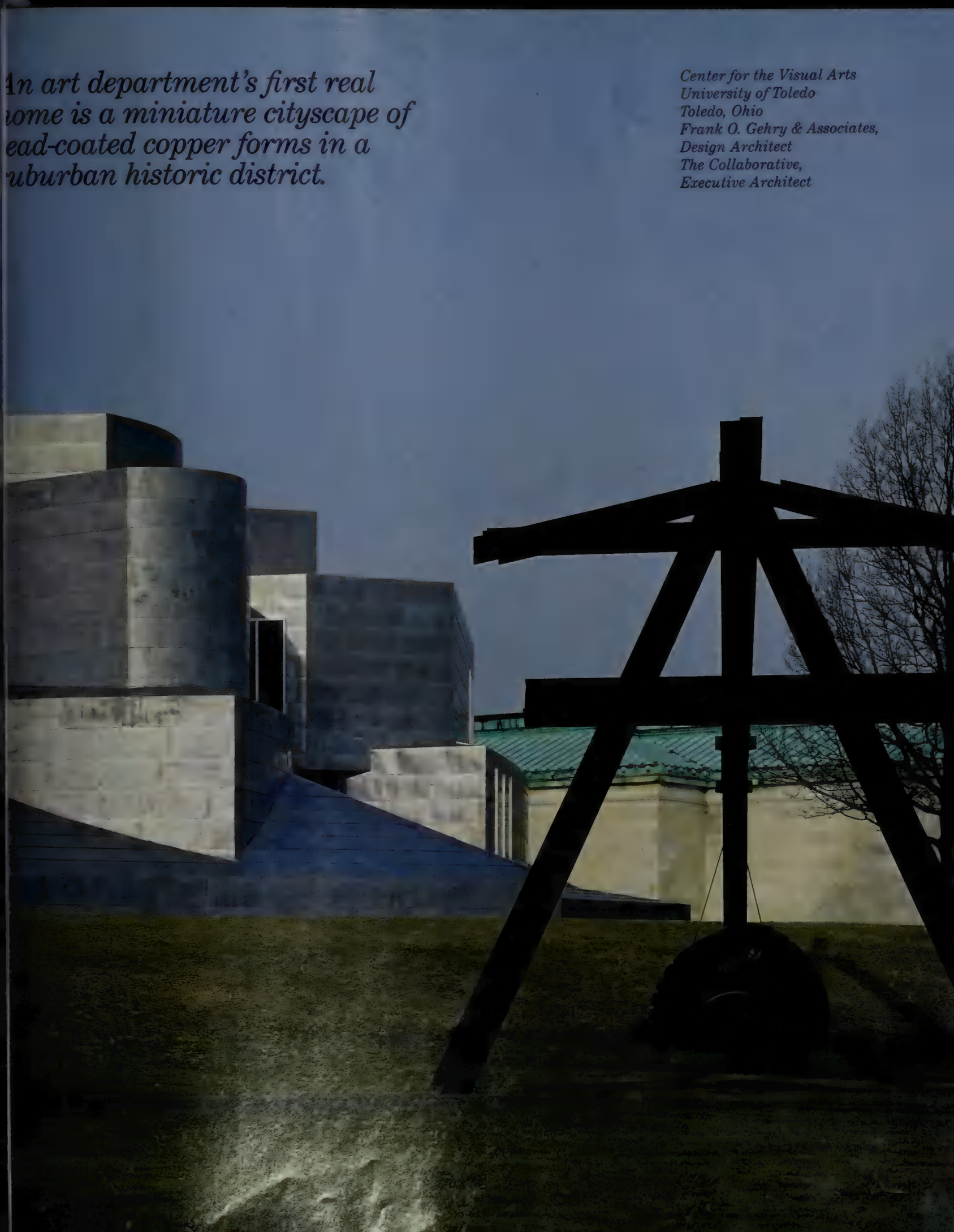


A Separate Piece



An art department's first real home is a miniature cityscape of lead-coated copper forms in a suburban historic district.

Center for the Visual Arts
University of Toledo
Toledo, Ohio
Frank O. Gehry & Associates, Design Architect
The Collaborative, Executive Architect



After more than 70 years, the University of Toledo's Department of Art finally has a home in Frank Gehry's new Center for the Visual Arts. The Toledo Museum of Art, a private institution, actually founded the department in 1921 while UT was concentrating its resources elsewhere. UT students were given credit for classes and studio spaces were housed in the basement of the museum, a Neoclassical structure designed by Edward B. Green in phases between 1912 and 1933. The art department was bursting at the seams when UT took over its full funding in 1987. While the "educational partnership" between UT and the Museum continued, both institutions decided that, at last, the art department deserved its own building and that it should not emulate its neighbor. As museum director David Steadman says of the partnership's plan for a new structure "it was *not* going to be Museum junior."

A joint search committee hired consultant Bill Lacy to help select an architect. After interviews with several candidates, Gehry was awarded the commission. "He clearly understood that what students need in a teaching facility is inspiration," recalls Department of Art Chairperson, Liz Cole. The building's program, developed by space planners Maurice W. Perreault & Associates, guided Gehry in defining the proper mix of spaces within the $10-million budget.

The "spring," as Gehry calls his design, seeks to embody the architect's, and the students', creative energy in built form. For easy access between studios and galleries, Gehry rejected a site across the street and attached his 51,000-square-foot building to the museum. "Any three paintings in this collection could change a student's career," he explains. To gain approval in the Old West End, a historic district, the design was slightly modified so that only one story of Gehry's building touches the museum. He stacked spaces requiring daylight—offices, studios, and the library—on top of an underground photography lab and mechanical room, creating a dense cityscape of shapes. Gehry wanted his structure "to appear as compressed as possible," unlike its expansive neighbor. "You could draw this building forever," says Paul Hollenbeck, of The Collaborative, executive architect of the project, about the complex forms—a result of Gehry's model-driven design process.

Gehry shaped the flat east lawn into a grassy berm. From the north, the building appears to sit on a plinth, similar to the way the museum sits atop its base of stairs. On the east side, the berm and its retaining wall shield the library from street noise. The entry facade is a curtain wall, a nod to Toledo's reputation as the glass capital of the U. S. (pages 82-83). Green-tinted panes echo the patinaed copper of the museum's roof. The building's most arresting feature is 30,000-square-feet of lead-coated copper cladding, which glistens even in Toledo's often overcast sky. Says Cole of the overall effect: "The building is a great advertisement for art." *Karen D. Stein*



© *Timothy Hursley photos*





As cladding, Frank Gehry chose lead-coated copper, a material commonly used for roof flashing, to contrast with the white marble of the Toledo Museum of Art (above). On vertical surfaces, metal cleats secure 55- by 29-inch sheets to the plywood substructure; the panels clip together to form a flexible sheath that expands and contracts with temperature changes. On sloped surfaces, 55- by 23 1/4-inch sheets are soldered together to keep out water. The skin has the iridescence of fish scales (opposite). Over time, the copper beneath will bleed through the lead finish in marble-like veins; the mint-green cast will echo the museum's patinaed copper roof. Near the entrance, a glass fence, an excerpt of the curtain wall, surrounds a gravel courtyard used to display student sculpture (following pages).









Courtyard windows consist of two layers of green-tinted glass. The outer pane is partially sandblasted in the shape of a frame (left). Daylight fills stair towers and corridors where student work is on display (opposite). Third-floor studios are skylit (section below). Fluorescent fixtures hung from the exposed-steel roof decking provide additional lighting (bottom).

Credits

Center for the Visual Arts
University of Toledo
Toledo, Ohio

Design Architect: *Frank O. Gehry & Associates—Frank O. Gehry, principal-in-charge; James Glymph, project principal; Peter Locke, Randall Stout, project architects; C. Gregory Walsh, Andrew Alper, Michael Maltzan, project designers; David Denton, Jon Drezner, Michael Resnic, Hiroshi Tokumaru, Tami Wedekind, project team*

Executive Architect: *The Collaborative—Paul R. Hollenbeck, principal-in-charge; Jim Williams, Rich Livecchi, Ray Defrain, Cynthia Schlagheck, production team; Richard Meyers, Philip Enderle, landscape architects*

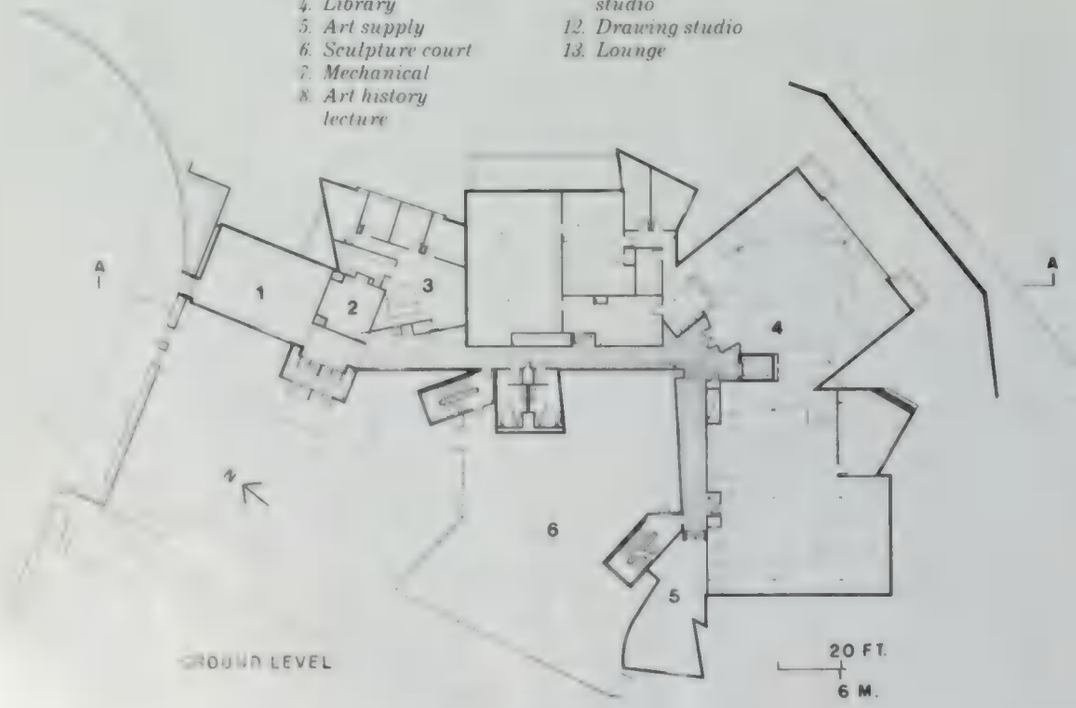
Engineers: *Leonhardt, Kreps & Lefevre (structural); Dansard Grohnke Long Ltd. (civil); Rightmyer Johnson & Associates (mechanical); Nelson Gibson & Associates (electrical)*

Construction Manager: *Ruddolph/Libbe, Inc.*



SECTION A-A

1. *Student gallery*
2. *Conference room*
3. *Administration*
4. *Library*
5. *Art supply*
6. *Sculpture court*
7. *Mechanical*
8. *Art history lecture*
9. *Art education*
10. *Office*
11. *Design/foundation studio*
12. *Drawing studio*
13. *Lounge*







Modernist Courtyard



ildings that pack a lot onto a small site yet still manage to feel pen and spacious are rare. But that's certainly the case with the w-budget French Institute and Cultural Center in Mexico City, designed by Enrique Norten. The school and event space follows a raditional Spanish-inspired courtyard plan that is gridded off by a Modernist system of concrete and steel posts, and animated by staircase and shading devices.

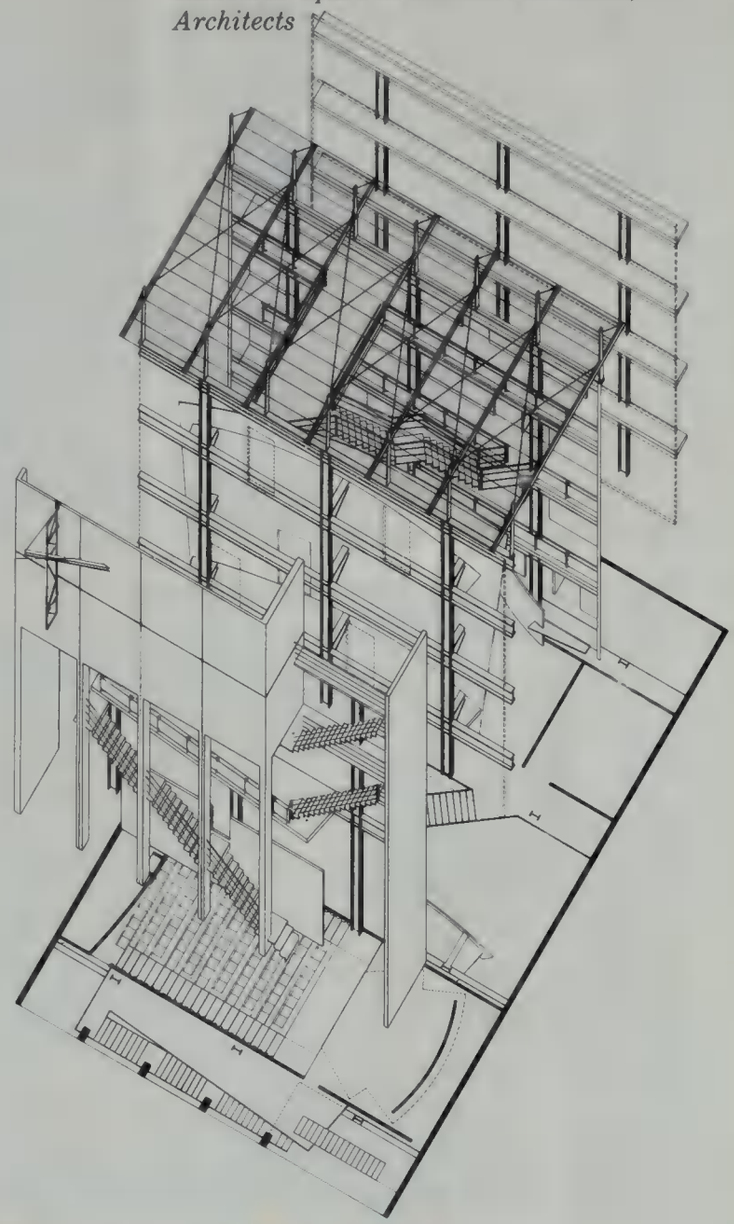
The French Institute, located in a middle-class neighborhood, is split nto two buildings separated by a courtyard covered with polycarbonate plastic panels. The street-side building contains public menities, an auditorium that seats 100 people, and a small caretaker's apartment; the rear building is a stack of 12 classrooms on top f a small library and office area. Both structures are four stories all, and together fill their 6,000-square-foot lot almost completely.

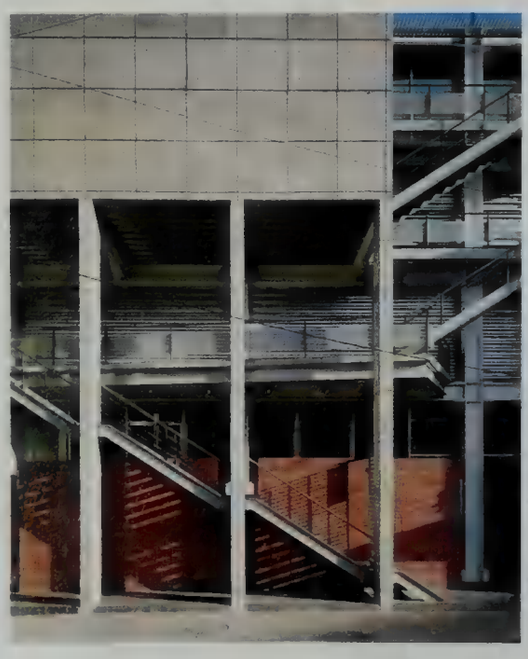
The logic of the Center, says Norten, is derived from the basics: program and site. "The front facade condenses the dense, low buildings ll around it, while the diagonal staircases inside pick up on the treet geometries around the site. The building is split in two because there are two uses: there is the public part of the program at he front, then the courtyard, and then the school proper." The split ets the second-floor lecture hall and ground-floor café operate even when the school is not in session, while isolating the classrooms in he quieter, rear portion of the site.

What fleshes out this simple concept is a response to the local geology and climate. The two side party walls are massive poured-in-lace shear walls that work with columns spaced 20 feet apart to rovide seismic stability. The west, or street facade is closed at the op to shade the building from the sun, and the courtyard acts as assive solar storage, collecting heat throughout the day and then istributing it slowly throughout the open structure. Norten tretched a tensile-fabric shield over the east wall of the front building to protect it against the morning sun. As a result, the building as no mechanical heating or cooling devices other than in the ecture hall.

The architecture of the institute creates an expansive space within he urban compaction of Mexico City. "I started off with a grand order meant to ennoble the simple programmatic decisions," says Norten, "and layered on more spontaneous responses to the site." These include the shading "sail" and the internal staircases, which Norten says respond to the natural circulation of people through the uilding. Moving through all of these structural layers is a journey rom the density of Mexico City into what Norten calls a "space xperiment." It all unfolds in a thoroughly sensual yet logical way.
Aaron Betsky

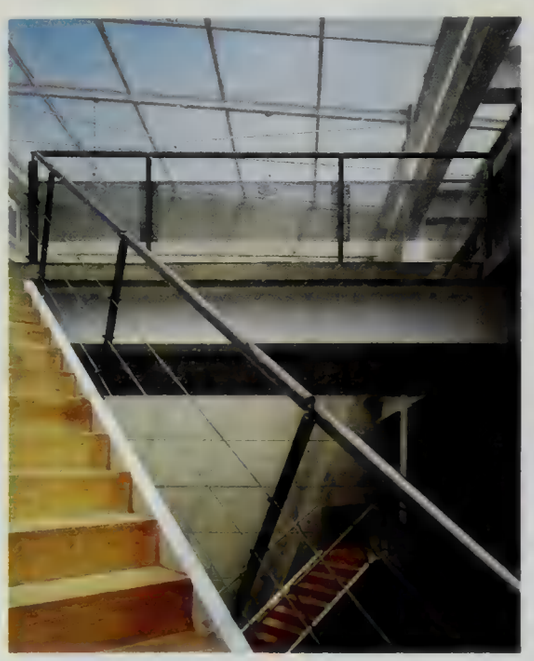
French Institute and Cultural Center
Mexico City, Mexico
T.E.N. Enrique Norten and Associates, Architects



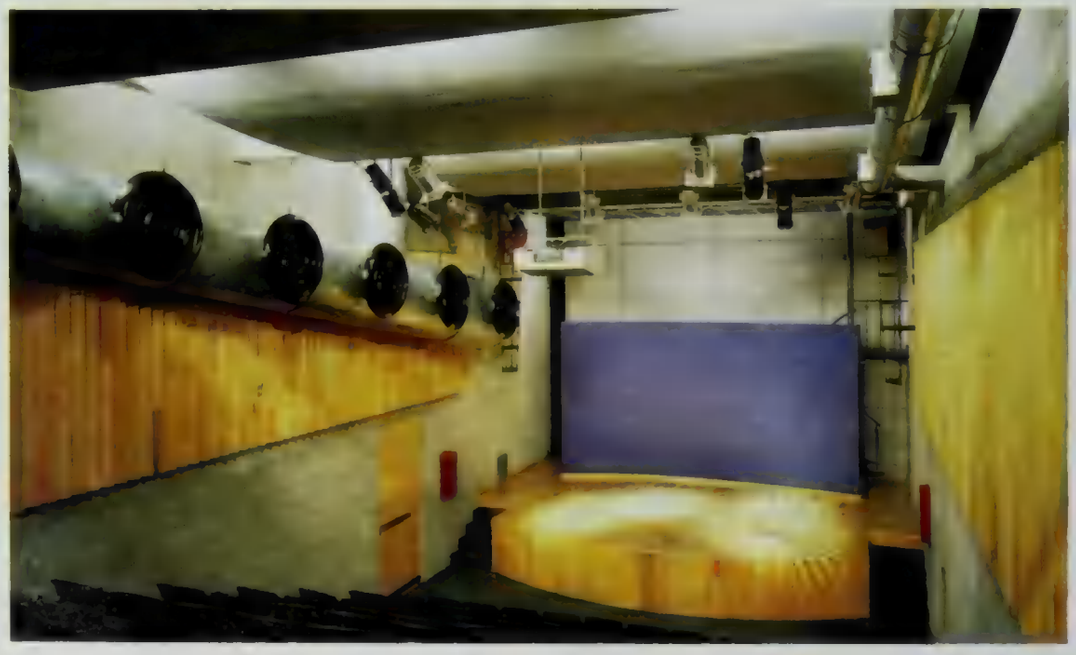


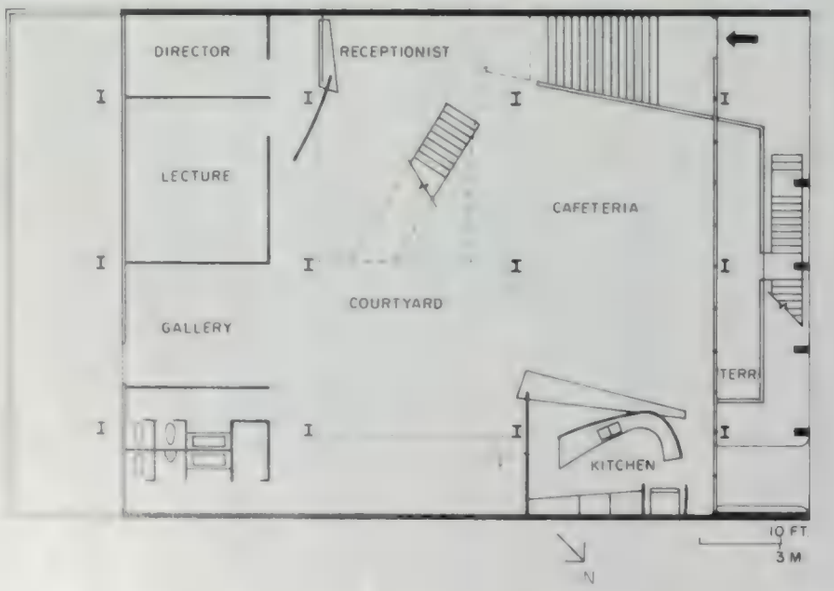
Luis Gordoa photos

The front of the French Institute lifts a blank facade up to the sun, but invites entry (and air) through a porous street-level space of porches, ramps, and stairs. The building extends the height, materials, and density of its neighbors, but separates these elements into a clear order, which is revealed in the courtyard.









Norten's first concern was meeting Mexico's rigorous new seismic code, instituted after the 1985 earthquake, followed by a concern for cost. This led him to use a simple, rigid structure to define the courtyard (this page, top left and right). The building is more like an open cage than an enclosed space. Norton consciously played secondary design elements against this order. The fabric sunshade (opposite) stretches over the railings and openings mitigating strong sunlight and creating playful shadows. It provided a visual but not physical separation between the two halves of the building. The stairs continue the simple material language of metal and concrete, but add angles and wood to respond to human movement and touch.

The auditorium (left center) is spare, with exposed ducts, lighting, and masonry, and is completely isolated from the rest of the building.

Credits
Centro Cultural Lindavista
Mexico City, Mexico
Owner: *Alianza Francesca de Mexico A.C.*
Architect: *T.E.N.—Taller de Enrique Norten and Associates—Enrique Norten, Bernardo Gomez-Pimienta, principals*
Engineers: *Ing. Raul Izquierdo (structural); ESISA, Ing. Jorge Polanco (electrical); Instaluciones Cumbre, Ing. Javier Aguerrebere (mechanical)*
Construction Coordination: *Aditeco, Ing. Enrique Ross*
General Contractor: *Robertson Mexicana*



Using Housing to Build Communities

While the supply of certain building types—most notably office buildings—far outstrips current demand, the need for affordable housing is beyond question. The U. S. Department of Housing and Urban Development today assists 4.5 million families, providing them with either public housing or some kind of housing subsidy. Unfortunately, HUD estimates show that 13 million additional families qualify for government assistance but aren't getting it due to budget limitations.

In the past, the federal government was a major player in the construction of affordable housing. Today, it has largely relinquished that role, prefering to act as a guarantor of low-interest mortgages and a source of housing subsidies. Picking up the slack have been some city and state governments, as well as a host of diverse nonprofit and private developers. In addition, a handful of nationwide "umbrella" organizations has emerged to provide local nonprofits with help in financing, building, and managing housing projects. This shift from the federal government to local groups, along with changing approaches to housing design, have caused important changes in the size, scale, and type of subsidized housing being built today. Instead of putting up new high-rise apartment blocks split off from their urban settings by ill-conceived parks, local organizations have spent most of their resources renovating low- and mid-rise buildings that reinforce the existing urban fabric.

Making almost all of this work possible has been the low-income-housing tax credit, which arrived in 1986 as part of the Tax Reform Act and expired at the end of 1992. In those six years, the tax credit helped finance more than 600,000 dwelling units throughout the country. The Clinton Administration has called for permanently reauthorizing the program and most experts expect this to happen.

Market-rate multifamily housing, though, remains a weak spot in the construction market. Since tax-law changes in 1986 eliminated much of this building type's appeal to investors, multifamily-housing starts have tumbled from a peak of 856,000 units in 1985 to just 159,000 units in 1992. While McGraw-Hill's F. W. Dodge Division says that multifamily construction will finally pick up in 1993 after seven years of decreasing activity, it estimates that only 175,000 units will be started this year. F. W. Dodge sees moderate increases each year until 1997 when starts should finally push beyond the 300,000 mark.

"One of our big problems," says Ron Shiffman, director of the Pratt Center for Community and Environmental Development and a member of New York City's Planning Commission, "is that over the last decade the whole mechanism for producing housing on the national level has been dismantled." While Shiffman applauds the emergence of local nonprofit housing organizations, he states, "They need more funding and other kinds of support." Shiffman also notes that "Not enough proper planning is being done. We're not examining where housing is being placed, how it fits in with the community or with the local transit system."

Too often housing has been seen as a problem unto itself and the typical response has been to build as much as resources would allow. Many experts today, though, recommend looking at housing as part of a larger picture. "We need to build communities," says Shiffman, "places where housing is integrated with retail, daycare, health care, and transit." The National Community Development Initiative (NCDI), a consortium of seven private foundations and the Prudential Insurance Company, was established in 1991 to help fund local community-development corporations (CDCs) and its program secretary, James Pickman, advocates a similar approach. Working with the Local Initiatives Support Corporation (LISC) and the Enterprise Foundation to administer the program, NCDI has helped finance nearly 4,000 units of housing nationwide—of which 800 are completed and the rest either under construction or in the pipeline. But Pickman states, "We're not a housing program. Our mission is to support community development."

A different kind of nonprofit organization that has chartered a new course is Habitat for Humanity, which defines itself as a home ownership program. Begun in 1976, Habitat for Humanity has built more than 20,000 houses worldwide and now ranks as the 22nd largest home builder in the United States, according to *Builder* magazine. Using private donations, volunteer labor, sweat equity, and internally generated revenues, the group builds houses for low-income people—mostly families—and then transfers ownership to them. By requiring recipients of aid to participate in the building of their homes, the organization helps give impoverished people a sense of personal investment in their housing, says David Snell, the group's director of education ministries.

Although Habitat doesn't use prototype plans, most of its houses share many characteristics. For example, almost all are single-family houses of between 900 and 1,100 square feet. Habitat has also built townhouses in Orange County, California, and renovated some apartment buildings in cities such as New York. But Snell admits that the group has been more successful in rural areas than urban ones. "There's a different set of problems in urban areas and we're still figuring out the best ways of addressing them." Habitat is currently working hard in the Sandtown area of Baltimore and will start a project on a Sioux reservation in South Dakota, where "the situation is very similar to that in the inner city," says Snell.

Having learned from the mistakes of the past, developers of affordable housing are designing their projects to reinforce the existing urban fabric and create a sense of community.

Learning from the mistakes of the past, architects are balancing community with privacy, and integration with security. While a housing project should fit in with its neighborhood and promote interaction between residents, it should also have its own identity and establish itself as a safe haven. "One of the goals of good housing is creating a sense of community," says Amie Gross, a New York City architect specializing in housing and economic development. "But residents should be able to participate or not, as they please."

Grouping common facilities such as laundry, mailboxes, and playgrounds together allows parents to socialize while doing chores and supervising children. Open spaces where kids can play are essential, and not just amenities, says Gross. In the apartments themselves, a balance between family and privacy must also be established. Living and dining rooms can work with kitchens to encourage family activities, but bedrooms for adults and children should be separated by more than just a common wall to maintain privacy. Although figures vary depending on the constraints of each project, subsidized apartments have gotten larger in the past few decades. According to Aaron Lewit, director of construction for the New York office of the Enterprise Foundation, studio apartments run between 400 and 500 square feet, while one-bedroom units are about 700 square feet and two-bedroom units are about 900 square feet.

In the last few years, some groups have been so successful in renovating the existing housing stock that in places such as New York and Seattle there are few abandoned apartment buildings left in many areas. As a result, a greater effort is underway to fit new construction into existing neighborhoods. In Seattle, GGLO Architecture and Interior Design rehabilitated 14 apartments in an old building just outside the central business district and then added 107 units in two new wings next door. The final project, called the Graham-Terry Avenue Apartments, shows how new and old can work together in helping revive an area that had hit hard times.

The Enterprise Foundation, which developer James Rouse started 10 years ago, is representative of the changes that have swept over the housing field. Although a national organization, Enterprise works through local groups—providing financing and technical expertise, but requiring community groups to program, build, and manage the projects. In the six years the New York office has been around, it has helped raise $200 million in low-income tax credits for the renovation or construction of 3,300 apartments in 200 buildings. As a major element in the city's effort to rehabilitate abandoned housing property, Enterprise has been "successful in reviving whole neighborhoods," says Lewit. Quoting James Rouse, Lewit says, "Housing is the platform people use to build their lives." *Clifford A. Pearson*

Answers from Andrew Cuomo

Andrew Cuomo is the designated assistant secretary for community planning and development at the U. S. Department of Housing and Urban Development. Cuomo had been president of H. E. L. P., a nonprofit developer of housing in New York.

RECORD: What are some of the key policies under study by the Clinton Administration and H. U. D. Secretary Henry Cisneros?
Cuomo: Restore economic growth of the nation's cities, thereby contributing to the restoration of national economic growth. The Administration has submitted draft legislation on empowerment zones to Congress to help achieve this goal. Tie in human development with economic development. H. U. D. hopes to help residents of public and assisted housing, the homeless, and other poor persons climb the ladder of opportunity to take advantage of jobs created. Combat racism and anti-social behavior, and reduce the concentration of the poor and minorities in low-income ghettoes. Promote good civic design and amenities to create attractive sustainable communities. Encourage community-based planning and citizen participation in a "bottom up" rather than "top down" strategy.
RECORD: How will you promote housing that fits its context?
Cuomo: I believe that community-based planning will go a long way toward ensuring that housing fits in with existing neighborhoods. On the other hand, citizen participation should not be used to segregate the poor in low-income areas and exclude them from attractive neighborhoods near good schools and jobs.
RECORD: How can H. U. D. create housing projects that work as communities and not just warehouses for the poor?
Cuomo: Large public housing projects that concentrate large numbers of the poor in one location are no longer being built. Family Self-Sufficiency and other programs encourage residents in public and assisted housing to enroll in programs of improvement toward self-sufficiency. To reduce crime and fear in existing housing projects, a new anti-crime bill is being proposed to Congress. We advocate a continuum of care for the homeless, where homeless persons move from shelters, to transitional housing, to permanent housing, all with adequate social services.
RECORD: Will you enact changes at H. U. D. to provide more on-site social services at housing projects?
Cuomo: Supportive Housing, Shelter Plus Care, and other homeless programs combine both facilities and services; however, for the most part, public housing services have to be obtained from other agencies. A large increase in funding for the Supportive Housing program has been requested for FY 1994. Under this program, grants may include a portion of annual operating costs, child care, employment assistance programs, and other supportive services. ■

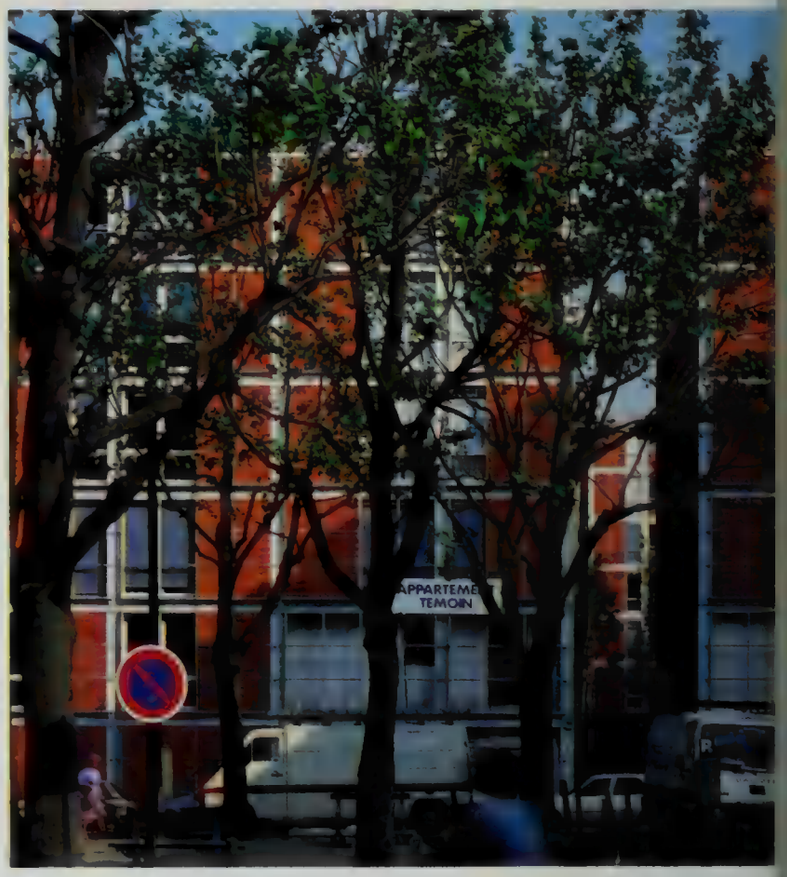
Rue de Meaux Housing

Paris, France
Renzo Piano Building Workshop

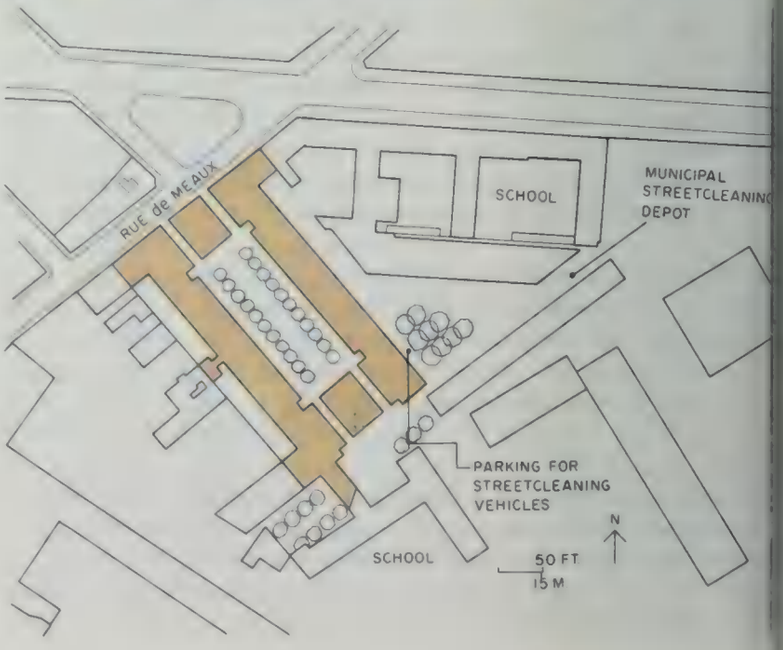
In his 1925 Plan Voisin for Paris, Le Corbusier imagined tearing down much of the Right Bank and building apartment-blocks in a park. More than six decades later, the Renzo Piano Building Workshop turned this idea inside out, putting the park within the buildings. And rather than wiping the urban slate clean, the Piano firm carefully inserted a 220-unit housing complex in a working-class neighborhood by reinforcing the existing street-wall and accepting the scale of adjacent buildings. In some ways, the Rue de Meaux housing in the city's 19th arrondissement looks back to 19th-century Parisian apartment buildings—mid-rise structures that help define the city's street while wrapping around a central court. The court at the Rue de

Michel Denance photos

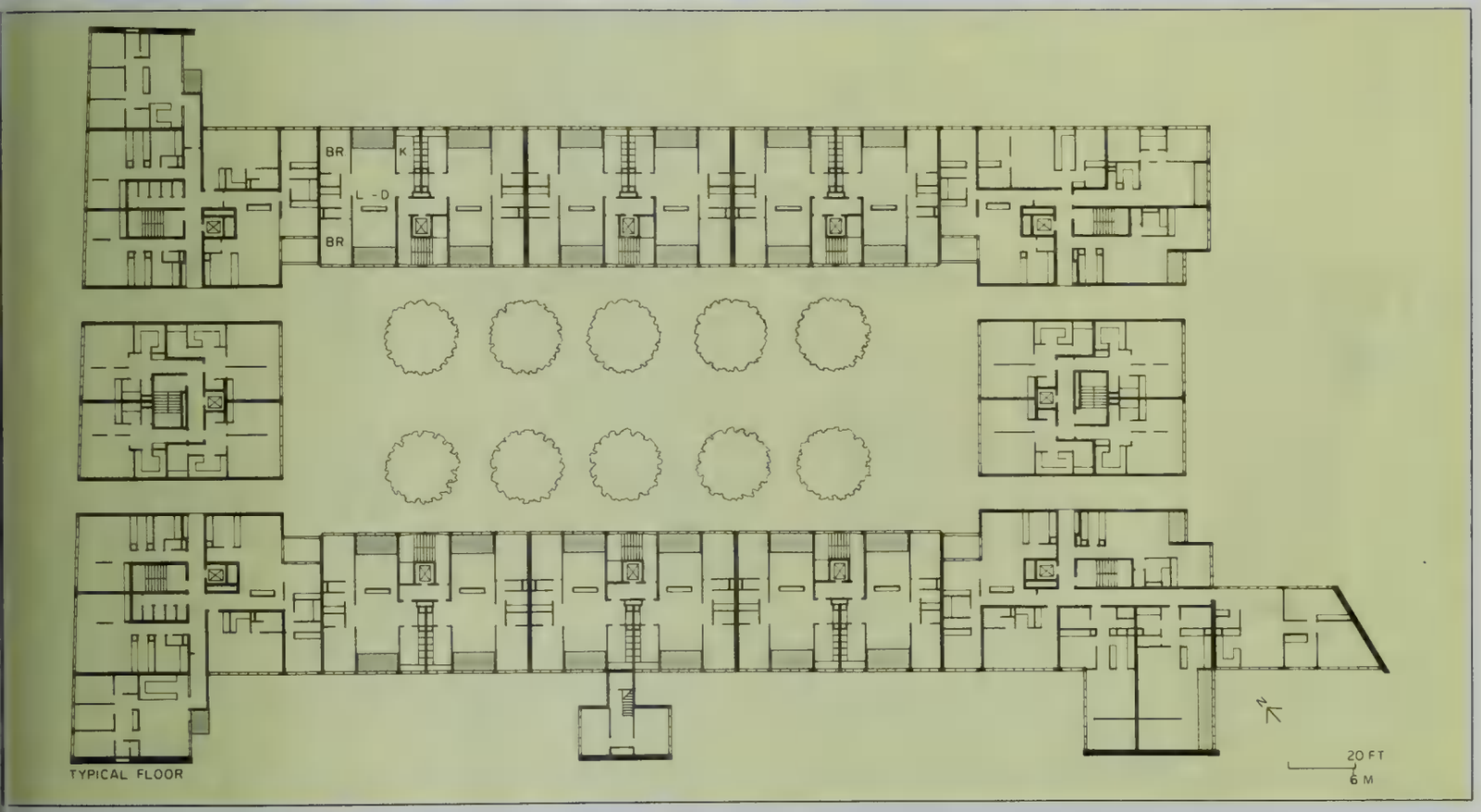


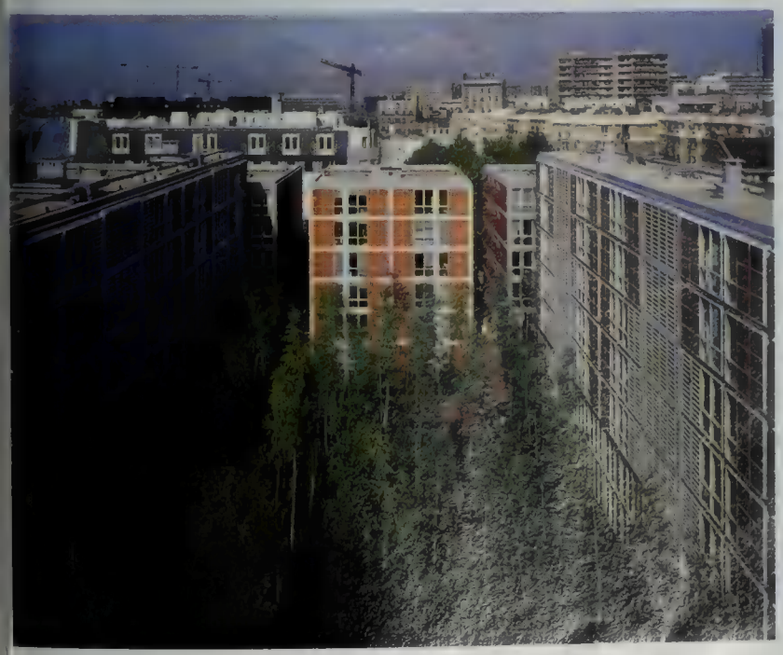


With shops on the ground floor and a building line that maintains the street-wall of the Rue de Meaux, the housing project attaches itself to the existing urban fabric of Paris's 19th arrondissement (above). Short alleys between the new buildings offer glimpses into the central garden (above right). Because the project has service roads on three sides of the site and a narrow floor plate (plan, right), it was unnecessary to provide access for fire trucks to the garden.



eaux, however, is a serene gar-
n filled with silver birch trees,
stead of the paved plazas
und within most 19th-century
artment buildings. Built by
e City of Paris and then sold to
insurance company, the
oject provides rent-controlled
artments for middle-income
sidents. The site was originally
ed as a city depot for street-
eaning vehicles and the new housing development, in fact, incorporates a smaller such depot at its eastern edge. According to the architects, three primary ideas drove the project's design: creating a central garden in a densely populated part of the city, investing the project with a diversity of apartment types, and designing three different facades to reflect existing edge conditions. With one of its short sides facing the Rue de Meaux, the project's impact on the neighborhood is limited; the other three sides of the complex look onto serviceways rather than true public streets. Two alleys divide the Rue de Meaux facade into three sections, further reducing its scale and offering glimpses into the central courtyard. This frontage also serves as an introduction to





By lining the central garden with buildings just one unit deep, the architects provided most apartments with twin orientations—to the garden and to the surrounding neighborhood (floor plan, above). The project includes nearly 40 different apartment layouts, ranging from studios with lofts to duplexes on upper floors. Measuring 216 feet by 82 feet, the central garden serves as a peaceful outdoor room for the entire project (left).

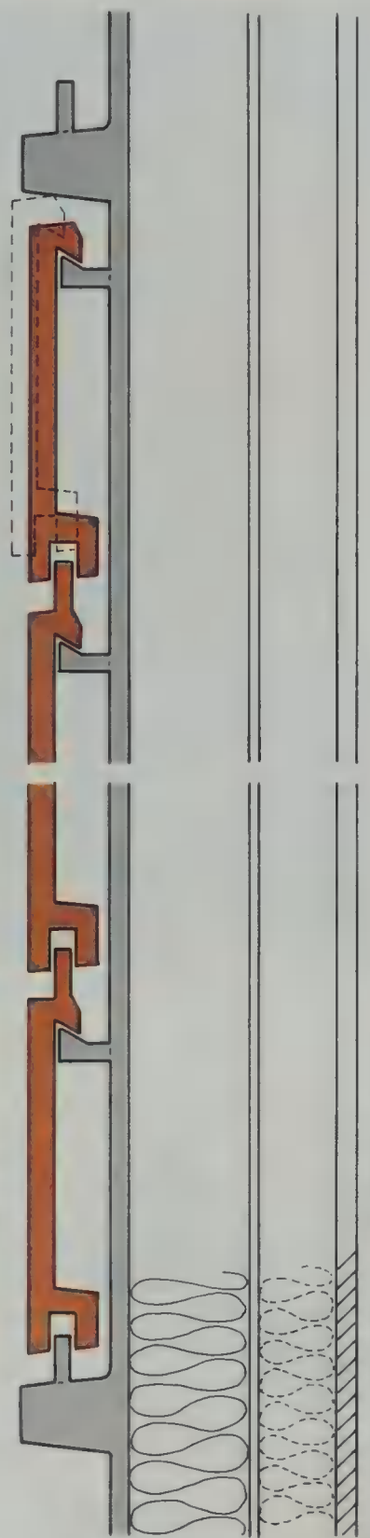
the project's distinctive facade system, which features varying combinations of glazing, fixed louvers, concrete panels, and orange terra-cotta tile attached to glass-fiber-reinforced concrete panels. The composition of facade elements is determined by the layout of the apartments inside and the solar orientation, and provides a rich variety of visual effects set within a strict concrete grid. Along perimeter serviceways, the facade elements are kept flush with the building's envelope. On other sides, the elements project nearly a foot (30 centimeters) beyond the primary structure. The purpose of these variations was to create calmer elevations along the tight serviceway edges and more active compositions on the more open sides. Although the crisp geometry of the project's street-side and the two alleys' views into the center of the block alert pedestrians that this is no ordinary apartment complex, the central garden still comes as a pleasant surprise. Measuring 216 feet by 82 feet (66 meters by 25 meters), the garden allows surrounding apartments plenty of daylight. The architects originally planned two rows of chestnut trees run ning the length of the garden, but eventually decided the spa needed a less rigidly arranged landscaping plan. The silver birches that now grace the cou provide visual privacy between apartments without ever becor ing a solid canopy of leaves. Th trees are planted directly in the ground because there is no par ing or other structure below th



courtyard. Two levels of parking, however, occupy space below the buildings themselves. The project offers a variety of dwelling-unit layouts, ranging from studios with mezzanines on the ground floor to duplex apartments with roof terraces on the top floors. Most apartments occupy the full width of the building, providing balconies and views to both the garden and the outside neighborhood. Studios on the first two floors have double-glazing running their full height, so more sunlight is brought inside. To maintain privacy, though, one layer of most of the glass is sandblasted to make it translucent. *C. A. P.*

Credits
Rue de Meaux Housing
Paris, France
Architect: *Renzo Piano Building Workshop—Renzo Piano, principal; Bernard Plattner, associate architect; Florence Canal, Catherine Clarisse, Tom Hartman, Ulrike Hautch, Robert Jan Van Santen, Johanna Lohse, Jean François Schmit, project team*





Although parking is under the apartment buildings, the garden has no structure below it; as a result, trees could be planted in deep soil, increasing their chances for long-term survival. One of the project's most important features is its facade system of terra-cotta tiles attached to glass-reinforced concrete panels (photo and section, left). The combination of terra-cotta, exposed concrete panels, aluminum louvers, and glazing helps animate the buildings' facades.

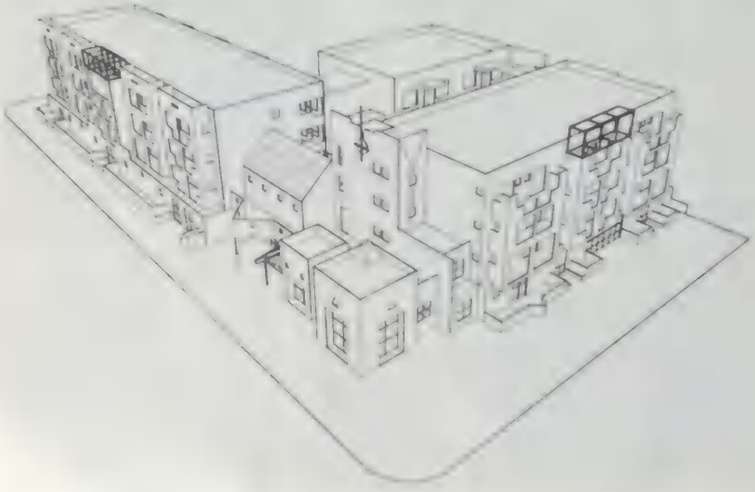
Manhattan Place

Los Angeles, California
John V. Mutlow, Architect

Although the Koreatown neighborhood of Los Angeles is a far cry from Paris's 19th arrondissement, Manhattan Place shares two important similarities to Renzo Piano's Rue de Meaux project (preceding pages): a reliance on courtyards as an organizing element and single-loaded apartments with through-plans. As in the Paris project, these two elements bring daylight into the apartments and help connect indoors with outdoors. Built by a small private developer for elderly residents who are almost all Korean, Manhattan Place took advantage of financing from the California Housing Finance Agency and the Los Angeles Community Development Department. Due to a storm drain crossing the site, architect John Mutlow put

Dean Pappas photos, except as noted





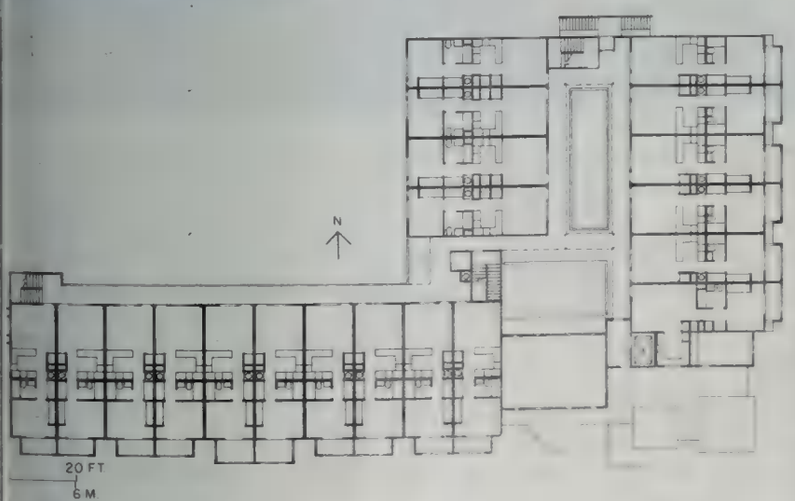


Ford Lowcock

parking on-grade and dwelling units on three floors above. The parking portion of the building is concrete block with a concrete-deck slab, while the housing above is wood-framed. By limiting the building to three habitable floors, the architect reduced costs by not having to install sprinklers. The project comprises three major building elements—two wings of housing set perpendicular to each other and joined at the corner by a community center that also serves as the main entrance. Two interior courtyards help open up the building to the outdoors—one that services the community center and the other in the east wing of apartments. Mutlow broke up the street-side facades by organizing dwellings into vertical clusters of six units, each with its own balcony treatment and identity. "With Los Angeles apartment buildings, you get to play with balconies and openings," says Mutlow. The project's 60 apartments are all one-bedroom units with balconies on one side and outdoor walkways on the other. Being through-units, they benefit from cross-ventilation and lots of light. *C. A. P.*

Credits
Owners: *Theodore and Soo Ng*
Architect: *John V. Mutlow, A. I. A.—John V. Mutlow, Brian Emerson, John Neel, Don Dimster, project team*
Engineer: *Jitu Mehta & Associates (structural)*
Landscape Architect: *Barrio Planners*
General Contractor: *Alpha Construction*





Built for $2.75 million, Manhattan Place aligns its two housing blocks with neighboring buildings to the north and west. The stucco-clad structure offers a variety of balcony treatments, which helps break up the length of the building (opposite top). The community center (above) anchors the corner of the site and includes a two-story space used as a chapel and a smaller room used mostly by male residents. The larger of the project's two courtyards (opposite bottom) serves as a gathering space for apartments around it. All apartments are one-bedroom units, 58 are 540 square feet, and two are 650-square-foot handicap units. Twelve other apartments can be converted into handicap units. A split-air system on the roof provides heat and air-conditioning.

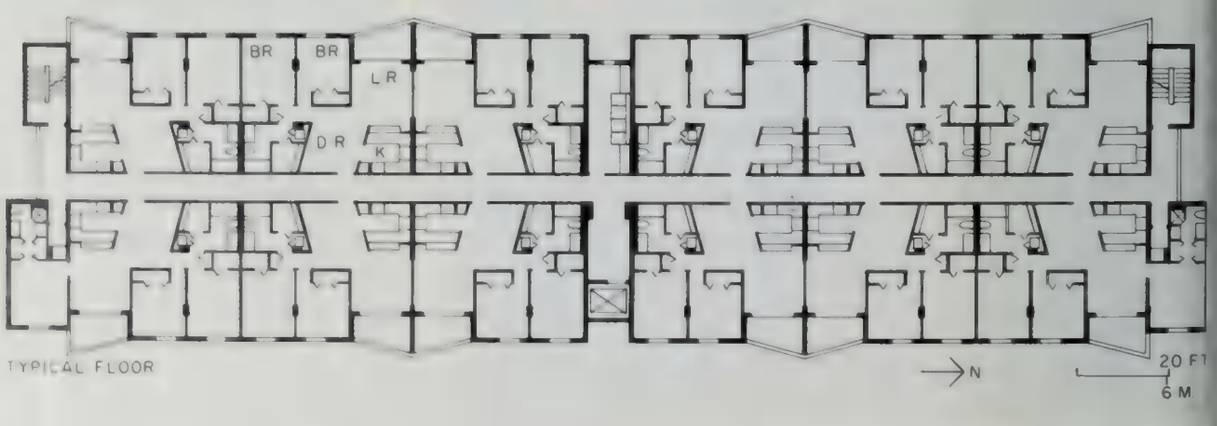
Edison Terrace

Miami, Florida
Arquitectonica, Architect

Located in Liberty City, a Miami neighborhood hit by riots in 1989, Edison Terrace is a 60-unit building in which color, crisp geometry, and a few architectural touches go a long way toward breaking stereotyped images of subsidized housing. "We felt that people in this neighborhood should get the same kind of architectural services that wealthier people get," says Bernardo Fort-Brescia, the Arquitectonica partner-in-charge. For all its pop, the project cost just $38 a square foot to build. Fifty of the apartments at Edison Terrace are reserved for low-income families, while the other 10 are available to anyone. "We wanted to mix income levels to create diversity and help revitalize the entire area," says developer Otis

Dan Forer photos

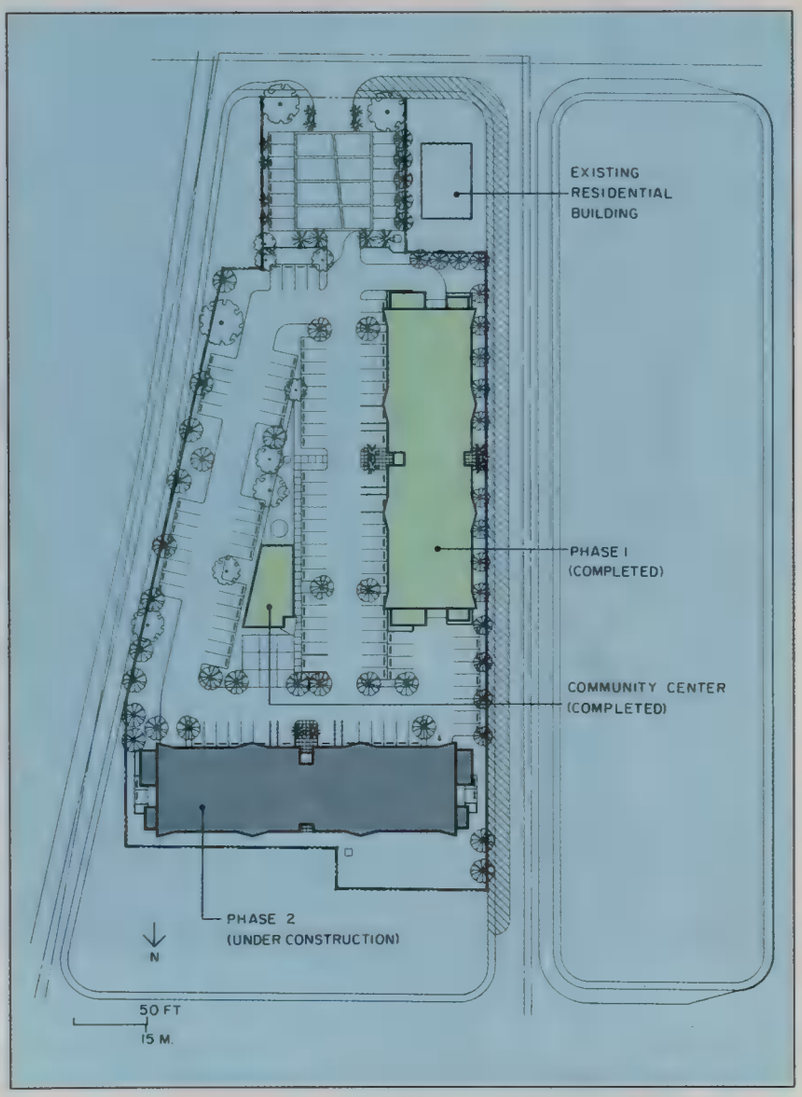




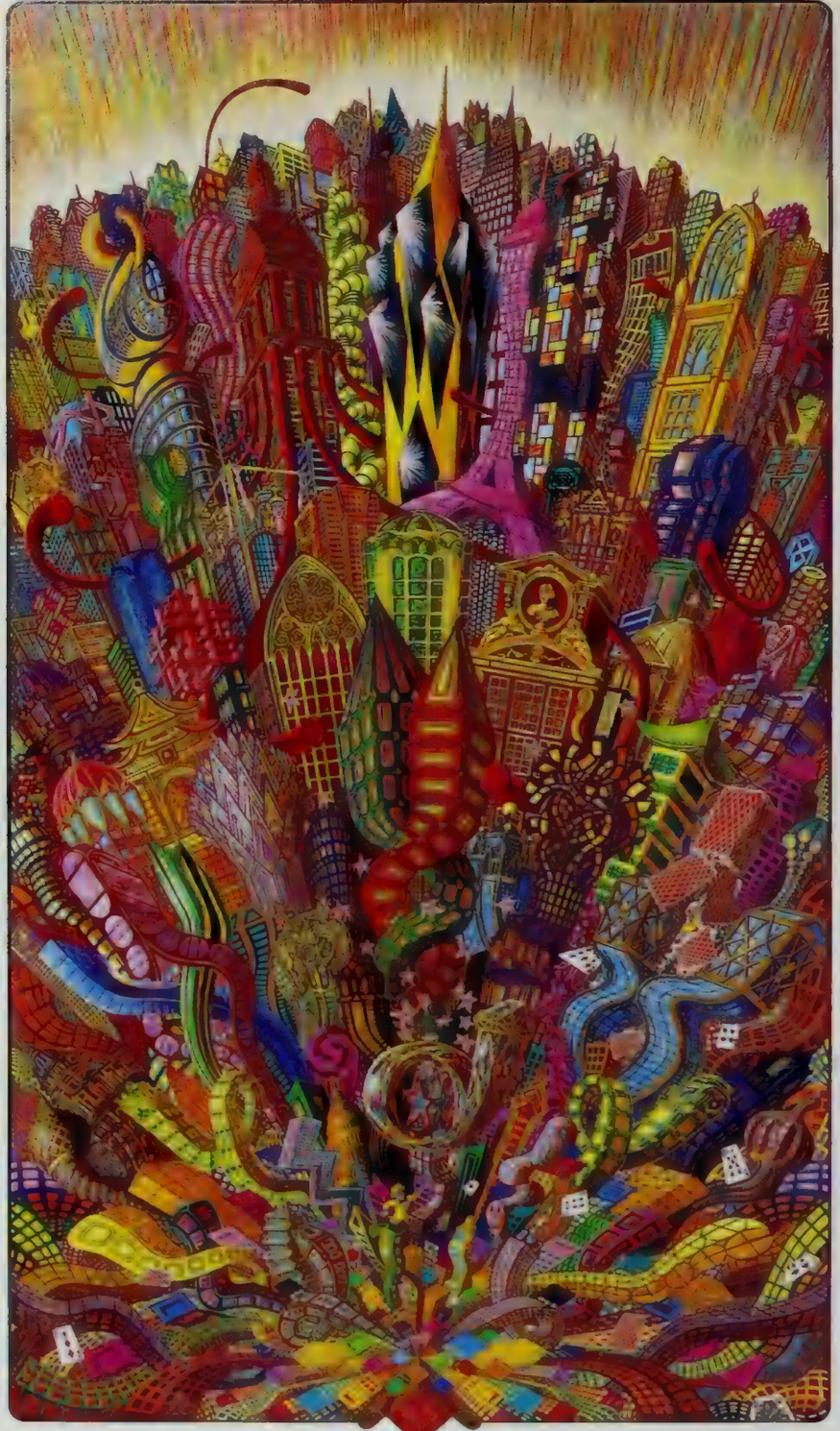
tts, who pulled together low-come housing tax credits, as ell as public and private financ-g for the project. Set on a apezoidal site along *Interstate* , the first phase of the project cludes a poured-concrete-ame building pushed back om the highway and a 1,700-uare-foot community center. ıe second phase, which will art construction this summer, will add an identical 60-unit building perpendicular to the highway. To keep costs down, the architects used a simple structure with a 24-foot grid based on the *piloti* forming parking bays on the ground floor. Careful design eliminated the need for drop-beams and load transfers, cutting costs even further. Post-tensioned slabs just seven inches thick serve as both floors and ceilings, except in bathrooms and kitchens where dropped ceilings are needed to provide space for vents. Using color and angled balconies, Arquitectonica brought the building's exterior alive. But these facades disguise the fact that only two kinds of fenestration were used: a window 4 feet 6 inches square and a sliding glass door 8 feet square. *C. A. P.*

Credits
Owner: *Edison Terraces, Ltd.*
Architect: *Arquitectonica—Bernardo Fort-Brescia, Laurinda Spear, principals; Dan Zabowski, project manager; Amauri Chacon, Todd Sweet, Suchi Reddy, Juan Carlos David, David Trautman, Eduardo Luaces, design team*
General contractor: *Beauchamp Construction*





uilt on an abandoned block, dison Terrace shows that assed-over sites can be success-ully developed, says Fort-rescia. "We don't have to keep oing farther into the Ever-lades for future growth," says ıe architect. The one-story mmunity center and bus-op canopy (above) sit on a rassy oasis that helps break p the expanse of surface park-ıg. Double-loaded corridors and simple floor plans help make the building 90 percent efficient in terms of net-to-gross area (plan opposite). By placing entrance doors off-axis from balconies, Arquitectonica opened up the apartments with angled views outside. Each floor has 10 two-bedroom apartments, two three-bedroom units, and a common laundry room opposite the elevator so residents can screen visitors.



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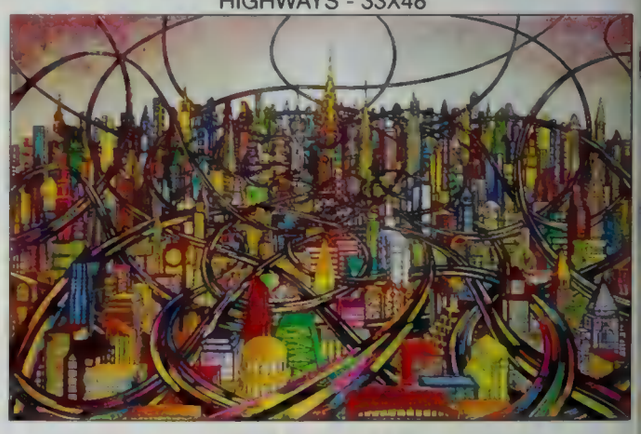
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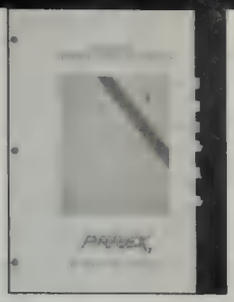
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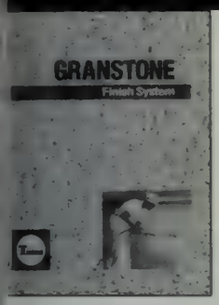
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00. CAD-format details
)OS-based CAD-NET software of-ers ASCII-format specifications for enerflex, Senerthik, and QR exte-ior-insulation and finish systems, as ell as three-dimensional detail rawings such as window surrounds, arapets, and quoins. Both specs and rawings can be modified under utoCAD to suit site conditions. energy, Inc., Cranston, R. I.*



401. Residential EIFS
A technical guide provides a standard specification for System R cladding, covering all common ways of incorporating the material in a residential application. Includes pertinent test data, such as vertical fire spread and accelerated weathering. Parex, Redan, Ga.



02. Multicoat finish
brochure illustrates how closely ggregate-based Granstone finish esembles natural stone, showing ow the coating can be worked to imic honed, rubbed, stippled, shot-round, or sawn granite. Suitable ubstrates include Thorowall EIFS, oncrete, and CMU walls. Twelve tone colorations offered. Thoro ystem Products, Miami.



403. EIFS substrate
A glass-mat-faced exterior sheathing, Dens-Glass Gold has a water-resistive core and an alkali-resistant exterior coating said to provide a superior bonding surface for EIFS adhesives. Free product sample and instructional video available to specifiers. Georgia-Pacific Corp., Atlanta.



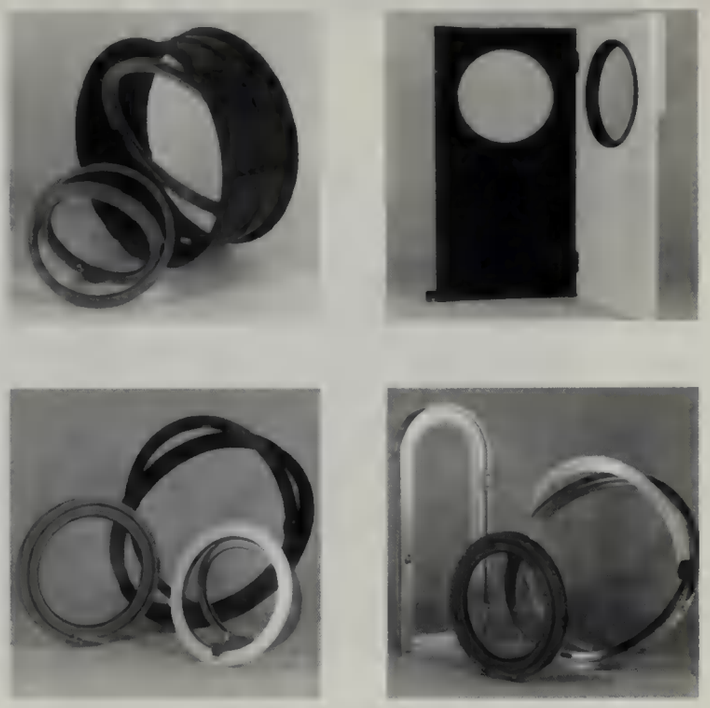
04. Flexible waterproofing
catalog matches an exterior wall's nticipated structural flex with aterproofing products capable of dequate elongation. These colored oatings are described as ideal for tucco and exterior-insulation finish ystems which might tend to develop hrinkage and movement cracks. IP Div., Flood Co., Hudson, Ohio.
Product data on CAD disk



405. Standard specs for EIFS
Part of an expanding body of generic test, installation, and performance standards developed with ASTM, free Guide Specifications are offered for polymer-based and polymer-modified finishes, recommended underlayments, and correct joint techniques. Exterior Insulation Manufacturers Assn., Clearwater, Fla.
Continued on page 103

For more information, circle item numbers on Reader Service Cards.

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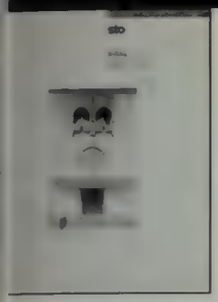
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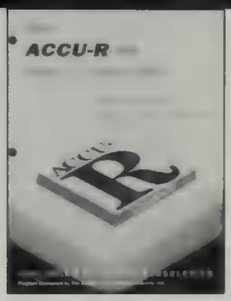
406. Silicone emulsions
A video training session introduces toSilco, a new European water-roofing technology based on ilicone emulsions, said to eliminate listers, fading, and mildew damage hile providing an attractive, vapor ermeable exterior finish. to Industries, Atlanta.*



407. Wall-surfacing systems
A Finestone brochure highlights the finish's appearance options, illustrating eight different pebbled or aggregate textures that resemble troweled plaster, stucco, limestone, and travertine. System comes in 20 standard shades, with custom colors available. Simplex Products Div., Adrian, Mich.



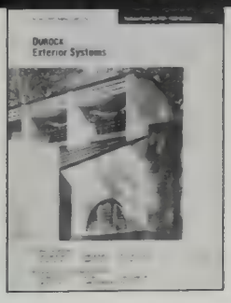
408. Acrylic-modified stucco
Catalog on the Pleko Structure System explains how the material is said to outperform conventional cement stucco, to be easy to install over wire mesh, and to have long-term resistance to freeze/thaw cycles, UV, and chemicals. Test data listed; standard colors and textures shown. Pleko Products, Columbus, Ohio.



409. Standardized insulation
A brochure lists the thermal and environmental benefits of expanded polystyrene produced and tested to the Accu-R industry standard. Currently applied to non-CFC/HCFC board used for roofs, the program is expanding to include EPS sidewall and other insulations. The Society of the Plastics Industry, Inc., Washington, D. C.



410. Residential finish
A colorful brochure highlights the flexible design options possible with Dryvit residential-siding systems for new homes or remodeling applications, stressing energy-efficiency and low-maintenance characteristics of each product. Dryvit Systems, Inc., West Warwick, R. I.*



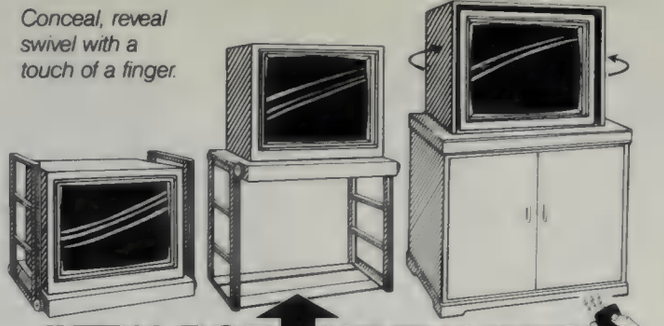
411. Exterior systems
A 20-page architectural catalog presents the Durock Exterior System—lightweight, fire-resistant assemblies for steel- and wood-framed walls, soffits, and other enclosures. Includes photos and details of tile, thin brick, epoxy-matrix stone aggregate, and EIFS finishes. United States Gypsum Co., Chicago.*

Product data on CAD disk

Continued on page 105

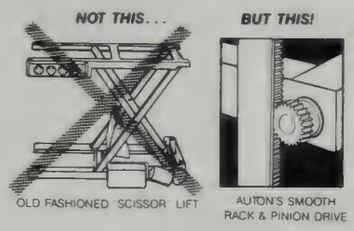
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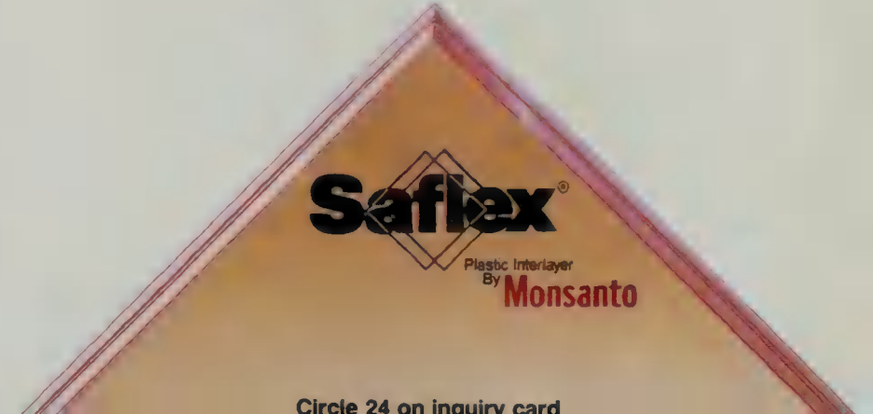


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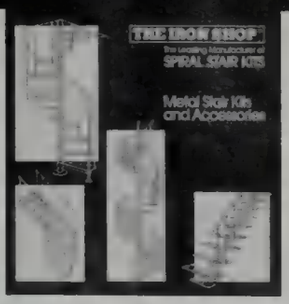
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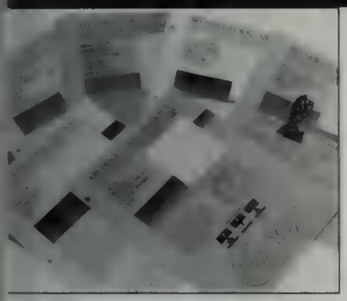
Product Literature



412. Casework CAD
healthcare-facilities 3-D design
ogram, Visions is described as an
telligent, parametric CAD system
ade for quick and easy layout of
sework and equipment in medical
fices, hospitals, and clinics. It
cludes an electronic product/price
tabase. Service registration
arge. Midmark Corp., Versailles,
hio.*



413. Spiral-stair kits
Interior and exterior stairs come in kit form for on-site assembly (tread spacers stack up the center support pole). Brochures show oak, steel, and mock-cast-iron Victorian One spirals as installed. The Iron Shop, Broomall, Pa.



414. Mineral-fiber lay-in ceilings
ewly published abstracts cover
even styles of architectural ceilings,
cluding Fissuretone II; Baroque
ustomline (a modular, scored look);
nd Variegated Everest, cast panels
terrazzo colors. Test and perfor-
ance data given for each ceiling
yle. Celotex Corp., Tampa.



415. Flooring accessory
Chain kits hold petal-shaped samples of all 32 Wallflowers colors. A new molded-rubber wall base offered in three heights and a seamless, 120-ft length, the flexible trim conceals wall irregularities, matches or contrasts with the flooring, and gives a finished look to a space. Flexco Co., Tuscumbia, Ala.



416. Case-type shelving
color brochure describes a double-
all shelving system for offices and
stitutions that is said to protect
ored materials, exceed ANSI stan-
ards, and to be easy to adapt to
cal seismic requirements.
pacesaver Corp., Fort Atkinson,
is.



417. Styrofoam specs
A Wallmaster Guide covers 25 installations of Styrofoam brand extruded-foam products on walls, foundations, and under slabs-on-grade; specifications are given in long, short, proprietary, and non-proprietary versions. Tutorials explain the fine points of each installation. Dow Chemical Co., Midland, Mich. ■

Product data on CAD disk

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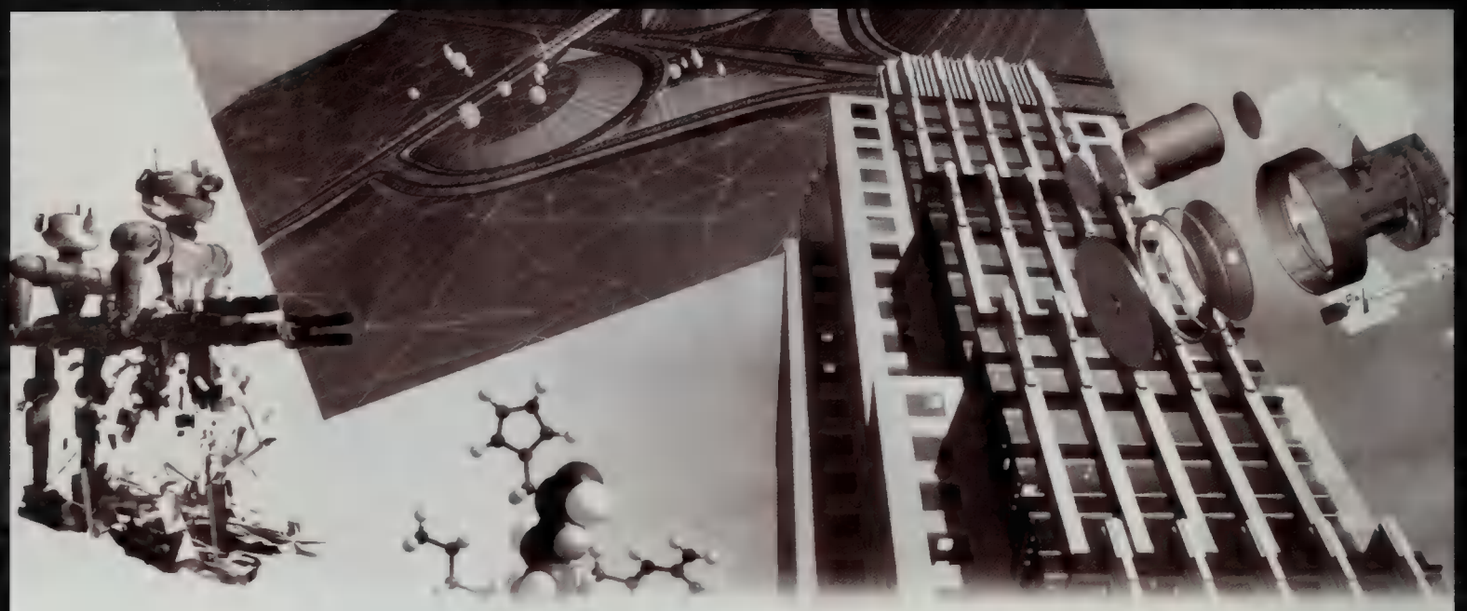
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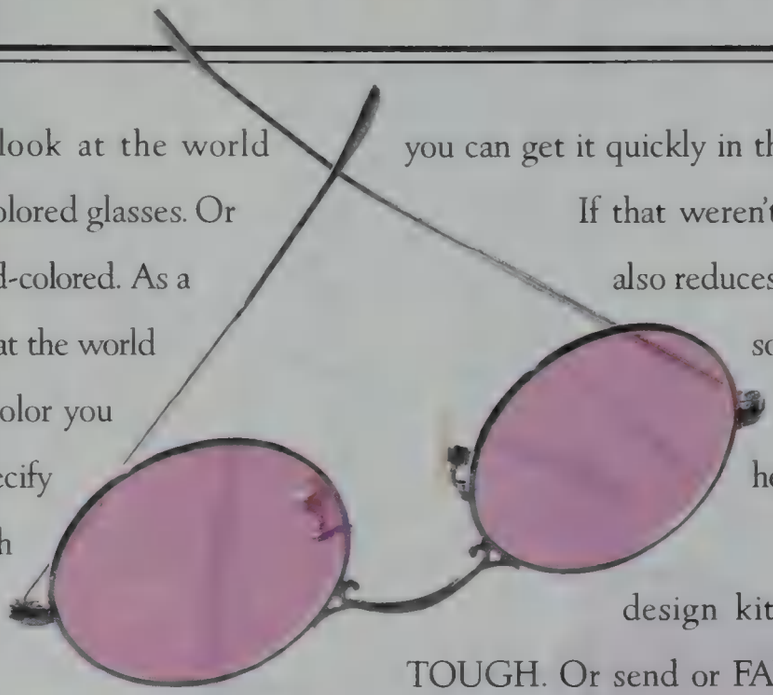
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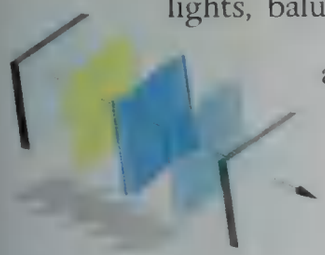
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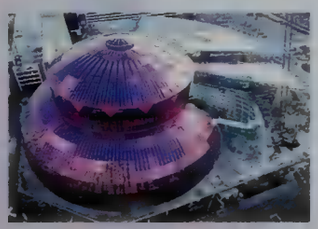
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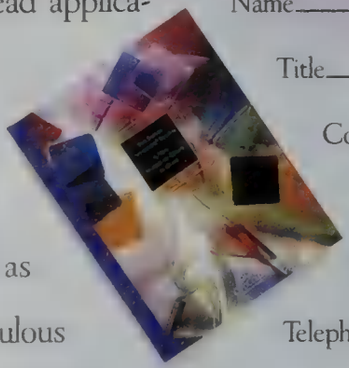
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Manufacturer Sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 58-67
United States Holocaust Memorial Museum
Pei Cobb Freed & Partners Architects
Structural steelwork: Rome Iron Group. Skylights: The Architectural Glazing Corp. UV control: 3M Co. Brick: G&A Masonry; Glen-Gery Corp. Limestone coping: Harding & Cogswell Corp. Precast concrete: Bogert Precast, Inc. Ornamental metal: Gichner Iron Works. Architectural concrete: White Medusa. Curtain-wall framing system: Columbia Architectural Metals Co. Metal roofing: The Mathy Co., Inc.; MJC Corp. Granite paving: Sopromat. Glass block: L. E. Smith. Direct-to-metal paints: Tnemec. Other paint: Glidden Co. Tile: American Olean Tile Co. Auditorium seating: Irwin Seating Co. Carpeting: The Harbinger Co., Inc. Acoustic panels: Novawall. Lighting: Edison Price, Inc.; Sterner Lighting Systems; Lightron of Cornwall.

Pages 68-73
Spiegel Corporate Headquarters
Skidmore, Owings & Merrill, Architect
Curtain wall: Cupples Div., H. H. Robertson. Silver-coated clear, green tinted, and fritted glass, vision and spandrel lights: Spectrum. Architectural concrete: Advance Cast Stone. Synthetic stucco: Pleko. Stainless-steel revolving doors: Horton Automatics; Crane Fulview. Swinging doors: Dawson Metal Co. Terrazzo: Metropolitan Terrazzo. Elevators: Schindler. Glazed security screen: Rudy Art Glass.

Pages 78-85
Center for the Visual Arts, University of Toledo
Design architect: Frank O. Gehry & Associates
Executive Architect: The Collaborative
Skylights and curtain wall: Custom Fabricators, Inc. Glazing: H. G. P.; Libbey-Owens-Ford Co. Lead-coated copper sheet cladding: Cambridge Lee Co./Hussey Copper Ltd. Fabricated by Midland Engineering Co., Inc. Entrances and pulls: Kawneer Co., Inc. Suspended fixtures: DayBrite. Cement-floor finish: Hydrozo (Enviro Seal). Paints: Sherwin-Williams. Railings: Art Iron, Inc.

Pages 86-89
Alliance Francaise
Taller de Enrique Norten Y Asociados, Architect
Skylight: Robertson Mexicana. Polycarbonate glazing: Polygal. Sunscreen: Casa Planas.

Pages 96-97
Manhattan Place
John V. Mutlow, Architect
Stucco color: Ad Mixtures, Inc. Metal roofing: Berridge. Built-up roofing: G.A.F. Sliding doors and windows: Century Window, Inc. Narrow-stile entrances: U. S. Aluminum Corp. Paints: Dunn-Edwards; Sinclair. Mailboxes: Jensen. Outdoor fixtures: PrescoLite; Regent.

Pages 98-99
Edison Terrace I and II
Arquitectonica, Architect
Stucco color: Pro-line Paints. Modified-bitumen roofing: GS Roofing Products. Windows, entrance doors: Wells Aluminium Moultrie, Inc.

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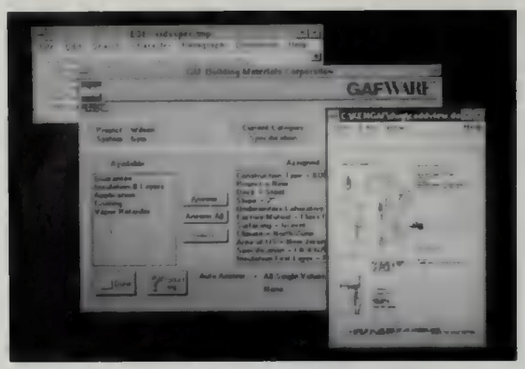
Ceiling designs copyrighted by Armstrong.

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New Products

308. Windows-format roof details
GAFware software covers shingles as well as commercial low-slope roofing, working within Microsoft Windows. Project-specific design criteria is entered using a point-and-click interface to produce specs and detail drawings of the recommended roof system. Over 140 drawings can be exported under AutoCAD for incorporation in working documents. Program and installation free of charge. GAF Building Materials Corp., Wayne, N. J.





309. Unobtrusive sprinkler head
A new extended-coverage, quick-response sprinkler is said to have the smallest cover plate (2 3/4-in. dia) at the lowest profile (5/32-in.). A push-on, thread-off design places it flush to the ceiling, while allowing one-half inch of vertical adjustment. Concealment plates come in three standard shades and 500 custom colors. Viking Corp., Hastings, Mich.

310. Pressure-balance shower controls
Offered in three models for a range of budgets, Monitor faucets compensate for fluctuations in water pressure and meet all anti-scald codes. A notched temperature indicator simplifies correct installation. Delta Faucet Co., Indianapolis.





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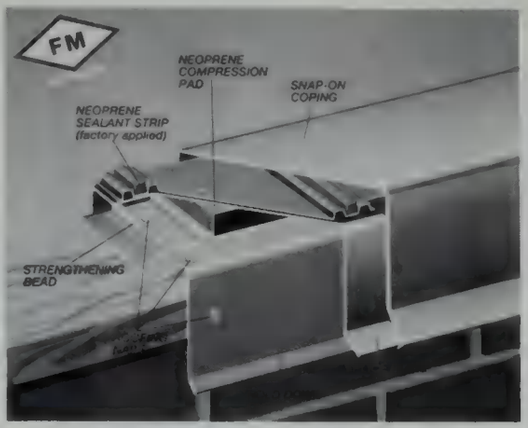
3M Reliability

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11. Structural glass walls
. meditation center in the Catskills (Frank 'Autilia, architect) required 11,000 sq ft of lass enclosure without view-blocking metal aming. Custom countersunk flush fasten- rs connect 200-ft-long runs (in 20-ft heights), loped-glass roof sections, and free-standing, ertical-fin walls in a totally flush exterior nvelope. W&W Sales, Spring Valley, N. Y.



312. Wind-rated coping system
The Tite-Loc roof edge is now available with a reinforced hold-down cleat where FM I-90 approval is required. A new positive-sealing splice plate supplies additional rigidity. The system comes in several gauges of aluminum as well as 24-ga. steel, for walls 6- to 16-in. thick. Finish options include Kynar 500, acrylic paint, and anodized. Petersen Aluminum Corp., Elk Grove Village, Ill.



313. Image of efficiency
A new mid-price office suite for mid-level management, Marlowe Series casegoods achieve a visual lightness through upward-tapering solid-hardwood legs, a reverse-bevel edge on work and storage surfaces, and drawer pulls set at an angle. Cherry and maple pieces include desks, VDT-compatible credenzas, and storage units. Customizing options include bow-front tops, inlaid reveals, and etched-metal surfaces. Lunstead, a Haworth Co., Holland, Mich. ■



The ANSWER Is –

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The QUESTION Is –

Which translucent daylighting system is the only one with a cutting-edge technology that is revolutionizing the industry?

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Mundelein, Illinois 60060 USA
TEL: 708/816-1060
FAX: 708/816-0425

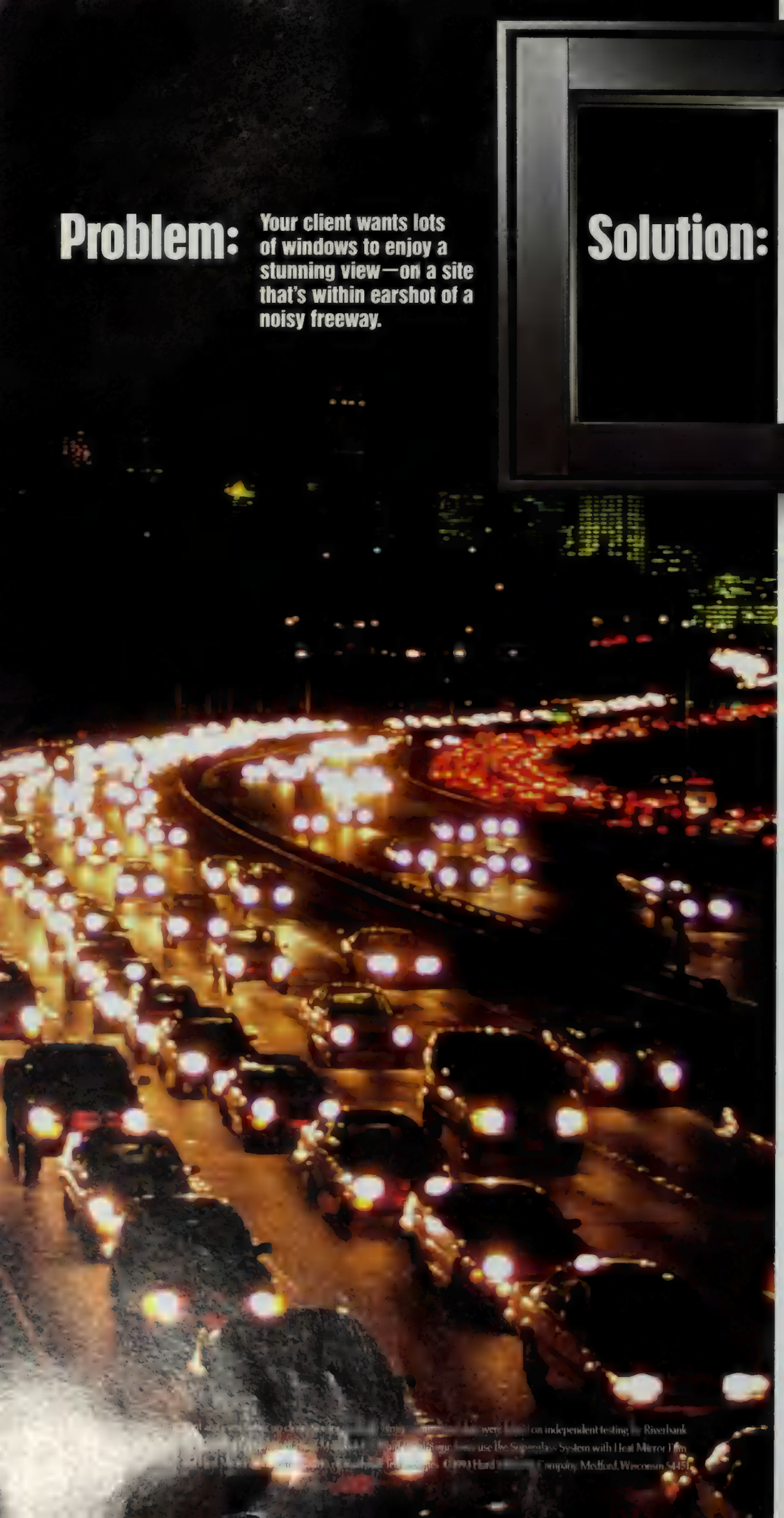
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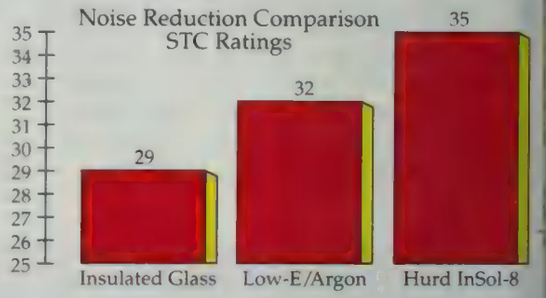
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Circle 34 on inquiry card

Problem: Your client wants lots of windows to enjoy a stunning view—on a site that's within earshot of a noisy freeway.

Solution: Hurd InSol-8® windows. With one of the most advanced glazing systems available, you can reduce most outside noise by up to 95 percent.





Hurd InSol-8® windows reduce most outside noise by up to 95%. That's 53% better than double pane and 24% better than Low-E/Argon. The result? You can create a comfortable and quiet environment for your clients.

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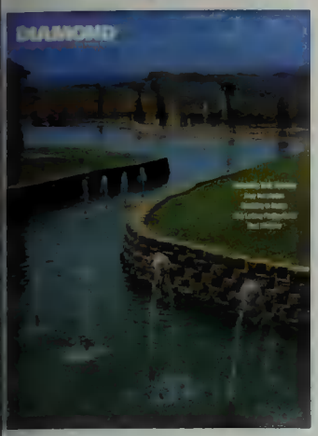
hurd WOOD WINDOWS

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Product Literature Showcase

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Diamond® Retaining Wall System



nchor Wall Systems offers complete full-color catag with product specificaon information, installation uidelines & reinforcement sage for its pinless & morarless segmented retaining all system that is flexible in esign, easily installed, long sting & a cost effective hoice for any commercial r residential retaining wall eed. Call (800) 473-4452 r a free catalog and anufacturer's name.

nchor Wall Systems

rcle 36 on the inquiry card

The Future of Cedar Shingle Siding

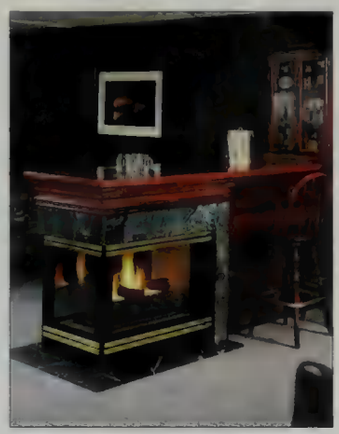


Cedar Valley's new 8-page color brochure details the panelized exterior siding system. Included are specifications, product descriptions & illustrations, finishing & application information, & nearly four pages of color photos of significant projects by leading architects throughout the U.S. who used conventional & Decorator shingle panels. Cedar Valley. Call: 800-521-9523. FAX 408-636-9035.

Cedar Valley Shingle Systems

Circle 37 on the inquiry card

HEAT-N-GLO Fireplace Products



Looking for quality fireplaces that combine efficiency and aesthetics? Call for our brochure on energy-saving built-in gas or woodburning fireplaces. Including see-thru, three and four sided glass fireplaces, inserts for pre-existing fireplaces or our direct-vent (no chimney) gas fireplace available with remote control.
Call: 612-890-8367.

Heat-N-Glo

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Barrier-Free Entrances with Swing Door Operator

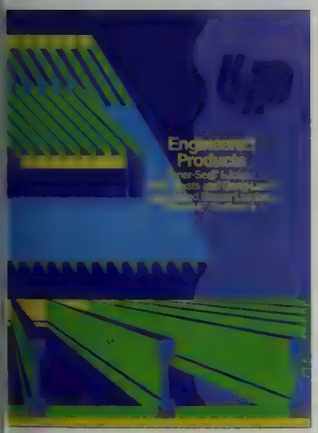


Our *EasyAccess*™ swing door operator makes complying with the ADA 1990 mandate "readily achievable". ADA defines this as "easily accomplishable ... without much difficulty or expense". The *EasyAccess* operator, installed without structural modifications, creates an affordably priced, barrier-free entrance for the physically disabled. Automatic operation with a push of a button.

Horton Automatics

Circle 39 on the inquiry card

Engineered Wood Products

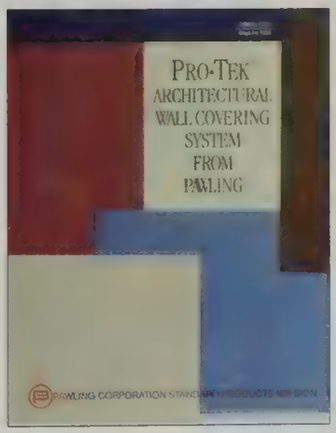


ngineered wood products re designed to eliminate the ommon problems of solid awn lumber. Gang-Lam LVL, I-Joists and GNI Joists are ronger, more stable and asier to handle than solid awn lumber. Catalog inudes span and uniform load harts, and information on ew Wood-E® Cut and Wood- CAD engineering software lso available.

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Pawling's PRO-TEK® Vinyl Wall Covering Systems



Pro-Tek® architectural wall covering products for most stringent design/color requirements. Standard 4'x8' vinyl sheets in various thicknesses, complete with color matched trim moldings. NEW prelaminated 4'x8' vinyl wall panels are mounted sturdy wall materials & matching trim accessories. NEW mall wall renovation panels, 24" or 32" squares by 3" thick, optional customized embossed company logos. Available in 40 NEW COLORS, carry a Class I fire rating & are UL & ULC approved. Call Toll Free 800-431-3456.

Pawling Corp.

Circle 41 on the inquiry card

Cedar Panel Roof System by Shakertown



Genuine cedar shakes and shingles are applied quick and easy with Shakertown's new Cedar Panel Roof System. The 40-inch long panels have an ASTM type 30 felt pre-attached that makes application simple for any roofer. The product is backed by a 20/25 year limited warranty. 1200 Kerron St. Winlock, WA 98596.
Call: 800-426-8970

Shakertown

Circle 42 on the inquiry card

Discover The Value In Basements



The Basement Design Guide from Koch Materials Company can help you discover new ideas in designing warm, dry, comfortable living spaces in below grade areas. This 20-page brochure highlights construction techniques and design considerations that help make the basement a value to you and your buyers. Includes information on a 10-year limited warranty against exterior foundation leaks.

Koch

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Product Literature Showcase

Open & Private Offices A Single Source



Transwall combines these two basic wall requirements for today's high tech office with its Soundivider open plan system and the full height Corporate series. The two systems offer complete interchangeability of wall mount components, as well as compatibility in design and appearance. Modular furniture blends with panel mounted work surfaces. Electrical and electronic support is system integrated.

Transwall Corp.

Circle 44 on the inquiry card.

VIXEN HILL MFG.

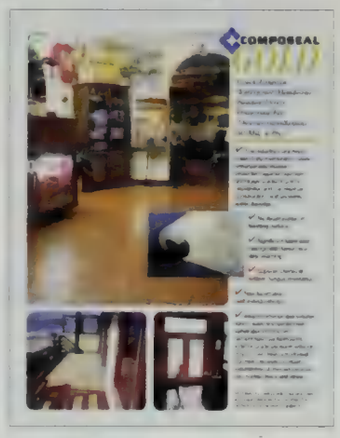


Tired of imitation shutters made from a mold? Unhappy with shutters held together by staples? Give yourself a surprise: traditional working shutters made of clear, old-growth western red cedar. Constructed with authentic teak-pegged mortise & tenon joints, Vixen Hill manufactures 8 classic panel & louver styles in standard & custom sizes. Cedar shutters feature heavy stiles & cross-rails as well as separate interlocking trim & extra thick louvers for extended product life. For brochure call 1-800-423-2766.

Vixen Hill Manufacturing

Circle 45 on the inquiry card.

Waterproof Underlayment Membrane

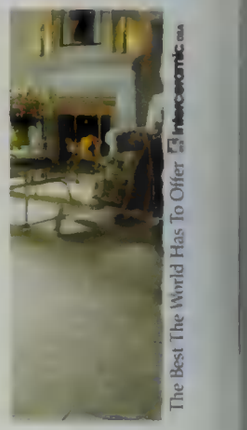


Protect floors and decks from water, vapor transmission and substrate cracks with COMPOSEAL GOLD. Bonds direct to concrete, cementitious backer units, mortar and plywood. Thin-set your ceramic tile or natural stone on top. Listed by Ceramic Tile Institute and UPC-IAPMO. Call Compotite for new catalog. (800) 221-1056.

Compotite Corp.

Circle 46 on the inquiry card.

Interceramic Tile



We provide tile to enhanc any environment - both com mercial and residential. Fror exceptional floor tile an graceful mosaics to glister ing marble and natura granite. Whatever your de sign, Interceramic tile will ad that distinctive touch c beauty. Call today for a fre brochure: **1-800-365-6733**.

Interceramic, USA

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Manniglas Slipsheet Fire Resistant Barrier



Roofing system brochure highlights company's new Manniglas 1208 Slipsheet & popular Manniglas 1200 Series Slipsheet for UL Class A & B single-ply roofing systems. A cost-effective alternative to gypsum and/or Manniglas Slipsheet is a lightweight easy-to-apply fabric barrier rolled out over combustible & non-combustible roof decks to prevent condensation & spread of flame in both re-roofing & new construction applications.

Hybrid Manning Nonwovens

Circle 48 on the inquiry card.

The Superior Architectural Glazing



HYZOD Polycarbonate Sheet is a tough, versatile glazing combining superior breakage protection and broad design latitude. With impact strength 250 times that of flat glass, HYZOD sheet provides lasting protection with the freedom to design and construct curved architectural glazing at a considerable cost savings compared to glass and acrylic. Sheffield Plastics (800) 678-5084

Sheffield Plastics

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Jacuzzi Whirlpool Bath



Jacuzzi Whirlpool Bath offers a 40-page, color catalog featuring the International Designer Collection of whirlpool baths, faucetry and the J-Dream family of shower systems. Jacuzzi® offers a variety of styles and features. Literature is also available on the Builder Group of whirlpool baths, the faucetry collection and shower bases. Call: (800) 678-6889.

Jacuzzi Whirlpool Bath

Circle 50 on the inquiry card.

Duraflake FR Fire-Rated Particleboard



DURAFLAKE FR is a smooth grain-free, class 1 fire-rated particleboard panel designed to meet fire code regulations. It is an excellent substrate for fine wood veneers, high and low pressure laminates and vinyls in all wall systems, furniture and fixture applications where fire codes and public safety are critical. Contact Willamette Industries, Inc., P.O. Box 428 Albany, OR 97321 or call (503) 928-3341.

Duraflake

Circle 51 on the inquiry card.

Marvin Windows' New Commercial Catalog



arvin Windows' new com-
ercial catalog describes the
ommercial capabilities of
arvin's entire line of wood
nd clad wood windows and
oors. The catalog provides
formation on product styles,
erformance and design
apabilities, as well as Marvin's
rchitectural Support De-
artment and other non-
sidential services.

larvin Windows

rcle 52 on the inquiry card

Inner-Seal T&G Flooring



Inner-Seal T&G Flooring - A more stable and durable OSB subflooring. New improvements for greater moisture resistance include notches in tongue to aid water run-off. Made primarily from small-diameter, fast-growing trees - reducing dependence on old growth forests. APA approved.

Louisiana-Pacific

Circle 53 on the inquiry card

Revere Copper Roofing - Ultrapan



Ultrapan is lightweight. That means less extensive - & less expensive - framing & sheathing are required. When roof coverings require certain decks, venting or other special construction, copper does not. **Ultrapan** can be installed over almost any substrate, does not require underside venting & can be used in conjunction with most other materials. Revere Copper Products, Inc. is today the world's leading producer of roofing copper. Call 800-448-1776 for more information.

Revere Copper Products, Inc.

Circle 54 on the inquiry card

Not Just Another LED Exit Sign



High-Lites CLED Series exits utilize a unique, indirect high-intensity LED illumination design. The unsightly exposed LED hot spots and multi-faceted designs are eliminated. Down lighting is standard in our heavy Die Cast ultra slim non-emergency and emergency models. High-energy-saving. Only 4 watts per panel. Call: (203) 575-2044.

High-Lites
Emergency Lighting

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airs built by Stairways, Inc.,
e distinctively styled, com-
ned with the highest stan-
ards of craftsmanship. Stairs
e built to your exact speci-
ations into commercial,
dustrial, or residential
ojects. Stairs can be fabri-
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ble. You have the option of
airs, both wood & steel,
ompletely fabricated for
stallation or kit form. For
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Custom Vinyl Windows



Louisiana-Pacific's vinyl windows and patio doors meet the most demanding new energy codes and are a perfect fit for new construction as well as replacement. Made with a new generation of stronger, modified unplasticized PVC, they resist rust, rot, scratches and dents. And they're available in a wide range of sizes and styles, including a large variety of custom shapes.

Louisiana-Pacific

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Aisle-Saver High Density Storage System



Aisle-Saver® high density mobile shelving systems save space by eliminating unnecessary aisles. Opens an aisle where you want it, when you want it. Doubles the capacity of filerooms, defers expansions and moves, reduces overheads. Utilizes existing shelving or cabinets. Brochure discusses applications, system layouts, safety & aesthetics. Call: 908-272-8888 or FAX: 908-272-7081.

White Office Systems

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RainhandleR™ gutter alternative



RAINHANDLER - Patented maintenance-free rain dispersal system. On thousands of homes worldwide. Converts roof runoff back to rain and disperses it gently. RainhandleR Plus™ disperses up to 30% more than best prior model. No clogging, no cleaning, no trenching, ever. Virtually invisible. Rugged aluminum - white, brown, natural. 25 year warranty. Free information. Call: 800-942-3004.

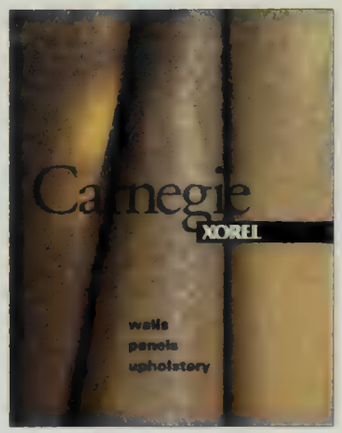
RainhandleR™

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Sports & Recreational Focus

Here are some products, catalogs, brochures and technical literature available in the architectural market today. To receive your copy of any of them, just fill out and return the Reader Service Card.

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Stain resistant, durable, flame retardant, easy to maintain and available in 1600 colors. Xorel is ideal for use on walls, panels and upholstery in sports and recreational facilities where performance and aesthetics count. For a brochure, sample folder and test results, contact Carnegie at 1-800-727-6770.

Carnegie

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Skytech Systems

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Almost indestructible th "Stacking Cot" is a one piec molded fiberglass bed struc ture that withstands the abus of rough handling & stackin in institutional environment Stacking Cots are in use major correctional institution It provides immediate, ten porary, or permanent be capacity additions. Cots ar approx. 80" x 35" x 20" high are available in an assortmer of colors & can be used wit a variety of mattresses.

Glassform® Duraform®

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18 Colors

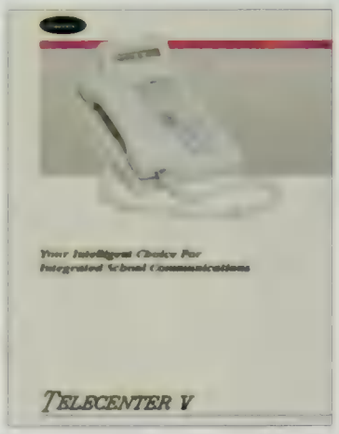


Tuflex 3/8" resilient flooring for areas where carpet requires replacement every six months. Design is bright and fresh, even after 10 years with proper maintenance, in golf shops, weight rooms and locker rooms. Benefits: superior safety features, of highest quality recycled materials. Recent installations: Japan's Abyama Golf Course and St. Luke Hospital. Tuflex Rubber Products Flooring. 4521 West Crest Ave., Tampa, FL 33614. 1-800-543-0390.

Tuflex Rubber Products

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Telecenter® V- School Communications



The Telecenter V Communication System is designed to help administrators work smarter instead of harder. It satisfies school telephone system requirements, it performs an extensive range of internal communications functions plus, it offers control of media resources by teachers. Rauland-Borg Corp., 3450 West Oakton Street, Skokie, Illinois 60076: (800) 752-7725.

Rauland-Borg Corp.

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Colleges, universities an community centers throughout the country are discove ing Sports Trak, the granul brick surface mix fro General Shale Brick that ca be used on stadium infield and warning tracks, joggin paths, park trails and othe recreational areas. For mor information, including a cu rent list of Sports Trak installa tions, write: General Shal Brick, P.O. Box 3547, Johnso City, TN 37602.

General Shale Brick

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Structural Designer for an architectural structural engineering firm. Duties include consultant to architect for structural design of buildings including: hospitals, university libraries, restaurants, and housing; conceptual design and calculations; contract drawings & specifications; construction inspection; and structural and design by computerization. Requires a Master of Architecture in Structures with a thesis or project in structural design. Applicant to have the following courses: Advanced Structural Design II, and Aesthetic Structures. Requires six months experience in the job offered or six months experience as an architectural designer. Salary is $13.00 per hour. Hours are from 8:00 am to 5:00 pm, forty per week. Send resume to 7310 Woodward, Room 415, Detroit, MI 48202. Ref. #21493. Employer paid ad.

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Director of Healthcare Architecture Midtown Manhattan architecture/planning firm seeks Director of Healthcare Architecture. Responsibilities include marketing, design, production and financial management. Seeking individual with a minimum of 10 years project management experience and knowledge of NY/NJ/East Coast healthcare market. For confidential consideration forward resume detailing experience, professional registration, references, salary history to: P-7236, AR.

OFFICIAL PROPOSAL

State of Connecticut
Department of Transportation

Legal Notice: The Connecticut Department of Transportation is seeking to engage a consulting firm to develop a conservation and restoration plan for a group of approximately sixty-five rigid-frame concrete bridges on the Merritt Parkway with a wide variety of ornamental detail, built between 1937 and 1942.

The firm must have experience in dealing with aged and deteriorated concrete structures and should have specific experience with the conservation of historic concrete. this experience shall include rehabilitation intended to restore or maintain the structural integrity of such structures as well as that intended for historic preservation purposes. The firm must have the ability to sample and carry out scientific tests and analyses that will determine the nature of the specific materials used, the contaminants involved and processes of deterioration that are occurring. All tests must be carried out to the highest current national and international professional conservation practices. All tests must be performed in such a way as to avoid causing any structural distress to the bridges.

The scope of the work is to include the inspection of all resources and the preparation of a report on materials, conditions, conservation priorities and recommended actions. Written specifications must also be provided for the conservation work recommended and the in situ rehabilitation of exposed concrete. The inspection shall include an in-depth structural inspection, and recommendations shall include those to address any structural deficiencies noted.

Firms responding to this request should be of adequate size and sufficiently staffed to perform the assignment described above. The proposed staffing of the office providing the services must be identified. Also, successful applicants to this request shall provide plans, design, environmental data or other supporting data in an Intergraph Digital CADD compatible format.

A letter of interest, together with general information on the firm and proposed subconsultants, the firm's brochure, current Federal GAS Forms 254 and 255, experience of the firm and a resume of key personnel should be addressed to Mr. Bradley J. Smith, Manager of State Design, Department of Transportation, 24 Wolcott Hill Road, Wethersfield, Connecticut 06109. All interested firms must submit a detailed statement indicating the organizational structure under which the firm proposes to conduct business. Proposed subconsultants should be clearly identified. The relationship to any "parent" firm or subsidiary firm, with any of the parties concerned, must be clearly defined. Four copies of this submittal must be included.

The selected firm will be required to have Department approved audit and affirmative action plan and current corporate registration with the Secretary of State (partnership excluded). Proof of Professional Liability Insurance Coverage will be required prior to to the start of the negotiation process.

The firm shall provide a statement of any and all contracts with either the Department of Transportation or the Department of Administrative Services which are currently being performed, and a statement as to whether the design professional consultant, or firm, performed services under any name other than the one appearing in the response. Personnel in responsible charge of the work will be required to possess and maintain a valid license for the practice of architecture and professional engineering in the State of Connecticut.

All letters of interest must be postmarked by the U.S. Post Office (if mailed) or (if hand delivered) no later than 4:30 p.m. on July 26, 1993. Responses hand carried or postmarked after this date will not be considered.

Commissioner;
Department of Transportation;
P.O. No. 297645.
An Equal Opportunity Employer.

POSITIONS WANTED

Management Partner, 15 years management experience, Cadd Whiz, RA, MBA, CPM, team player, with $20k software & equipment. Reply PW-7239, AR.

International Marketing - Architect with 15 yrs. business development experience and client base in S.E. Asia and Middle East, available for permanent position. Reply PW-7244, AR.

Executive. 23 years of experience including marketing, sales, administration, job costing, finance, cadd, and general management. Registered architect with MBA and a real interest in the bottom line. Solid computer experience since 1970, been innovative in CADD implementation. Show growth record in 2 organizations of 9 plus years each. I am seeking a growing firm that needs organizational help. Reply PW-7240, AR.

BUSINESS OPPORTUNITIES

Wanted: Architectural Practice. Seeking ownership transition/purchase or association. Upper midwest location. Reply to BO-7153, AR.

SPECIAL SERVICES

Russian Projects-CADD drawings translated into Russian, electronic data in any format. Kroskin Design Group PC, 6160 Kempsville Cir, Ste. 310A Norfolk, VA 23502, (804) 466-1109

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THE MARKETPLACE

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HANDY-SHIELD safety covers conform to the Americans Disability Act (ADA) whenever insulation of drain & supply lines are required to protect individuals in wheelchairs from burns or injury, under wash basins. HANDY-SHIELD features a unique conforming style with interior foam lining & exterior vinyl texture in an array of colors, resulting in an appealing finished product. Please call (619) 322-1772 for more information.

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New Pro-Tek® WCP - 1 Prelaminated Wall Panels



Attractive, textured-finish acrylic vinyl wall covering, in different weights, is laminated to choice of sturdy 4' x 8' sheet wall materials. Easy to install & available in new designer selection of 20 standard & 20 special colors, with assortment of matching vinyl accessory moldings.

PAWLING CORPORATION
STANDARD PRODUCTS DIVISION

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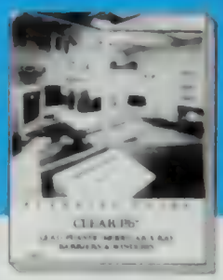
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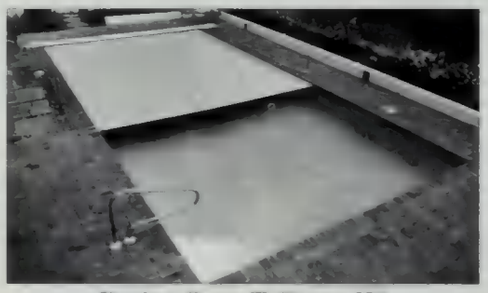
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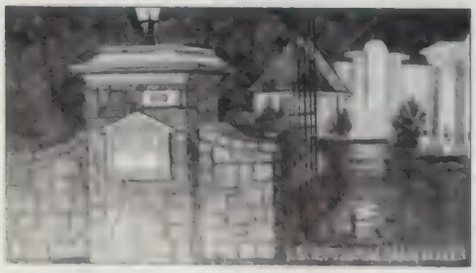


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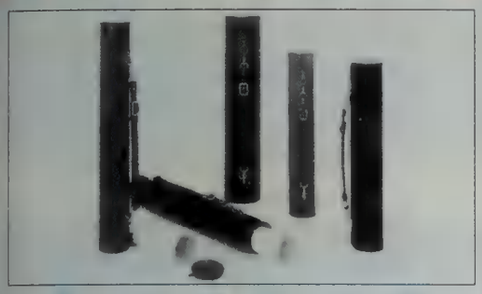
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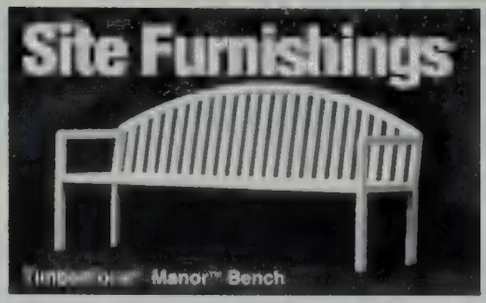
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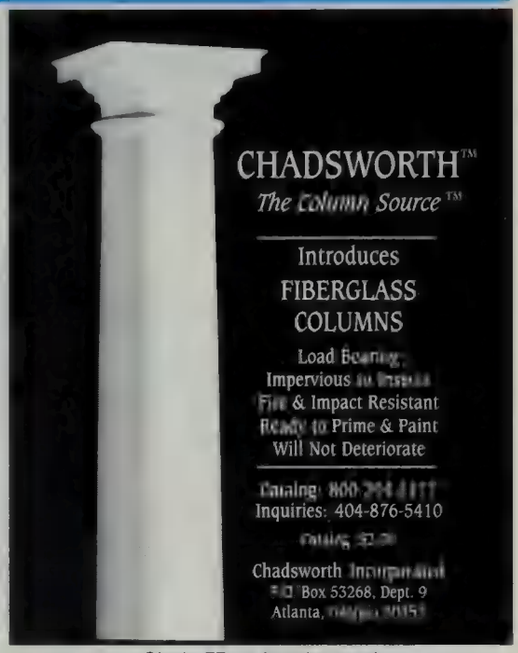
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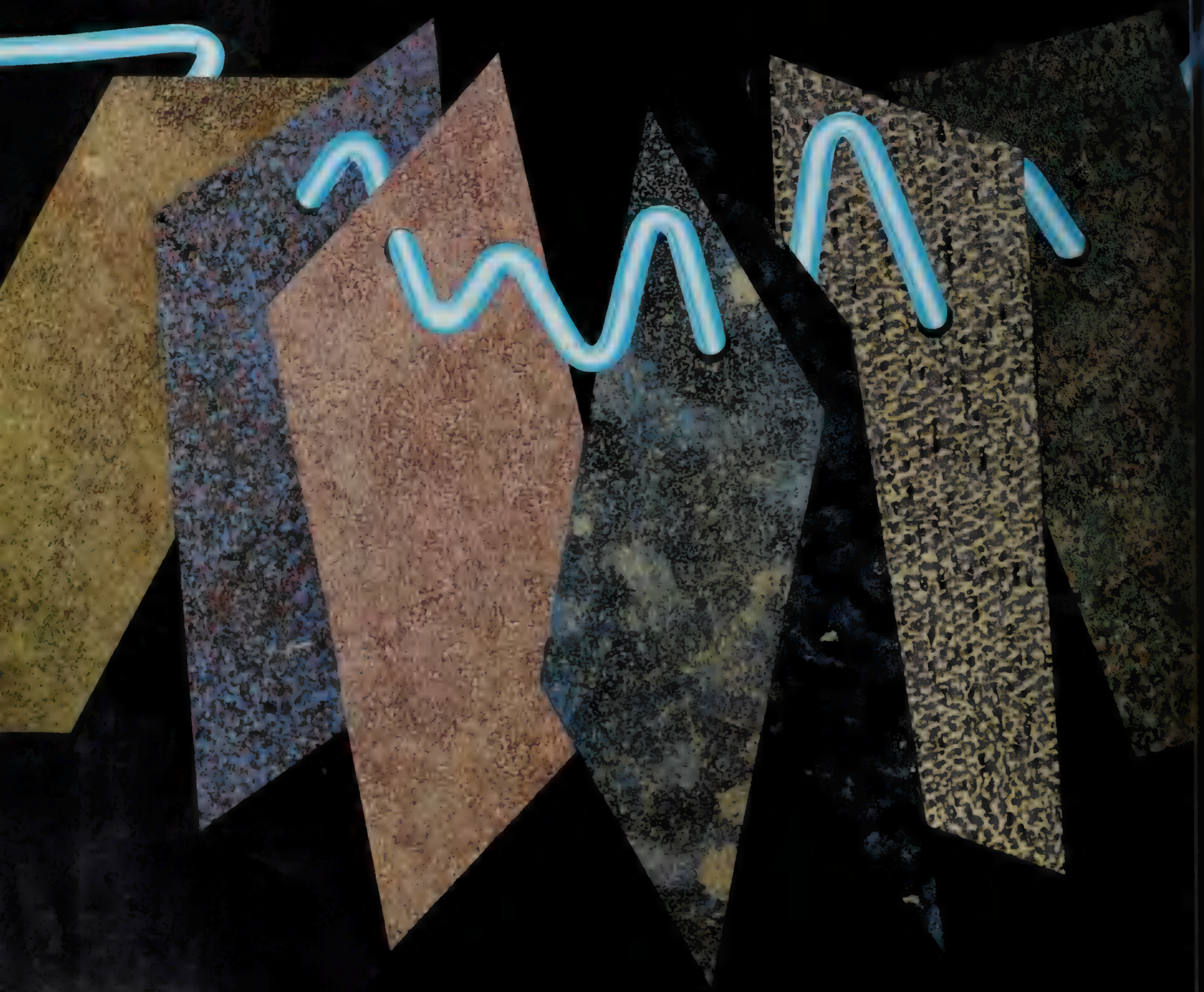
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Discarding Modernist Ideology

Suzanne Stephens' article on Montgomery Schuyler's critique of Chicago's 1893 World's Fair [RECORD, June 1993, pages 36-38] was enjoyable reading. Her description of the critical tone at the time vis à vis the project in question sheds an interesting light on our own times.

Stephens posits several notions:
- The criteria to judge the worth of a piece of architecture changes with the times, i.e., modern times require modern criteria; past times used past or outdated criteria.
- Because our late-20th-century criteria are better, our buildings can and should dispense with outmoded notions of unity, coherence, and illusion. Modern criteria should be better and more all-encompassing.
- Modern critical thought should move towards the unideological, as Schuyler implied.

These notions, which exist in the realm of critical theory, have grave implications for those of us who practice architecture. While it's true that the translation of rhetoric to built form is not necessarily on a one-to-one [basis], it is also true that two divergent critical outlooks would yield two different design responses to the same problem. This is sometimes evident in competitions. Our late-20th-century society is so immersed in the Modernist philosophical trappings that we sometimes miss fundamentals.

The notions enumerated above belong to a discard of Post-Enlightenment principles such as positivistic notions of progress and perception. These, in turn, [illegible] construction-[illegible] being. It seems to me that Schuyler's *unity, coherence,* and *illusion* should not be seen as inevitably the last twitches of the dead body of the past (as Stephens' article implies) but as what could be the celebration of humanness in architecture. Perhaps, after all, this was what the 1893 World's Fair was all about. Perhaps, 100 years after, architects will throw away Modernist ideology and do architecture again!

Manuel Mergal
Hardy Holzman Pfeiffer
New York City

Dangerous Duties?

I am appalled at the misleading idea that an architect performs "observation" duties during the construction-contract administration phase [RECORD, May 1993, pages 32-33]. The author, Ann Bayard Ketterer, confuses the duties of the observing architect (OA) with a project representative (PR). The PR's services are *additional* and paid by the client as an *additional* fee. The OA is only on site a short period of time, so it's impossible to perform all the "inspection" the author requires. The duties of an OA described in her article are *dangerous* since they can be used as evidence in court as the *standard of care* solely because it was printed in a respected architectural journal.

William Krisel, Architect
Los Angeles

Ketterer replies: Construction-contract administration, as described in my article, is a normal part of architectural services in almost all of the U. S. Outside project representatives are stepping in to compete for these duties and may be needed on unusually complex projects if the architect chooses not to be more involved in administration. ■

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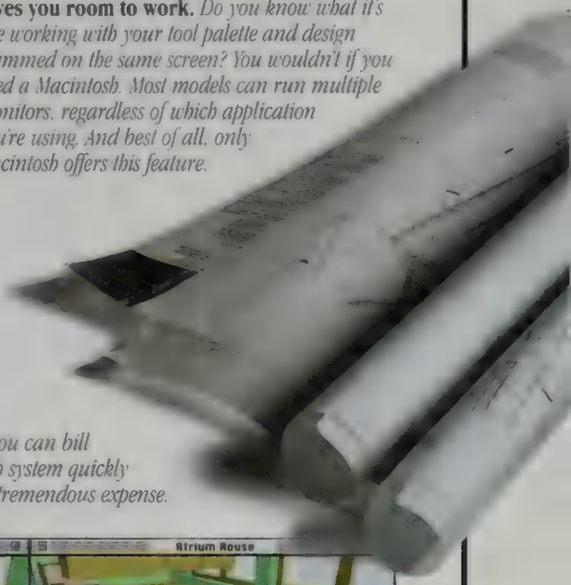
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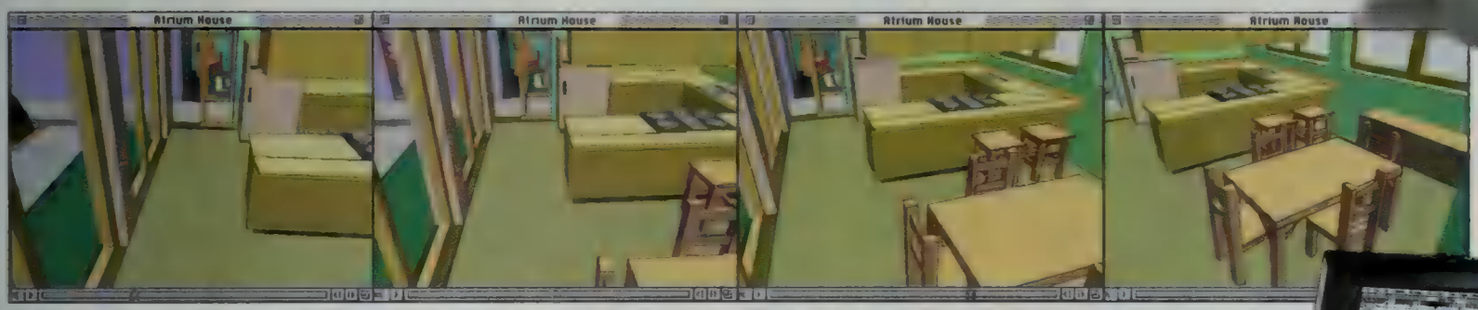
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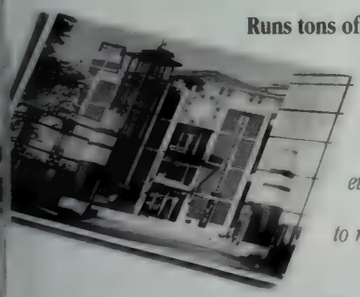
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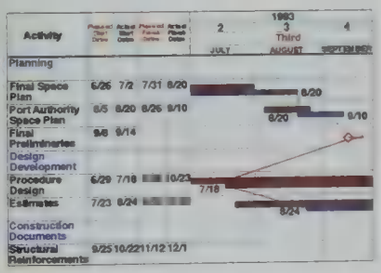
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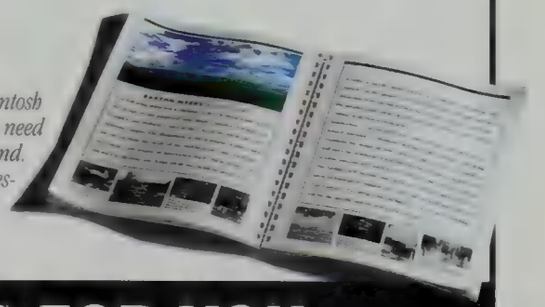


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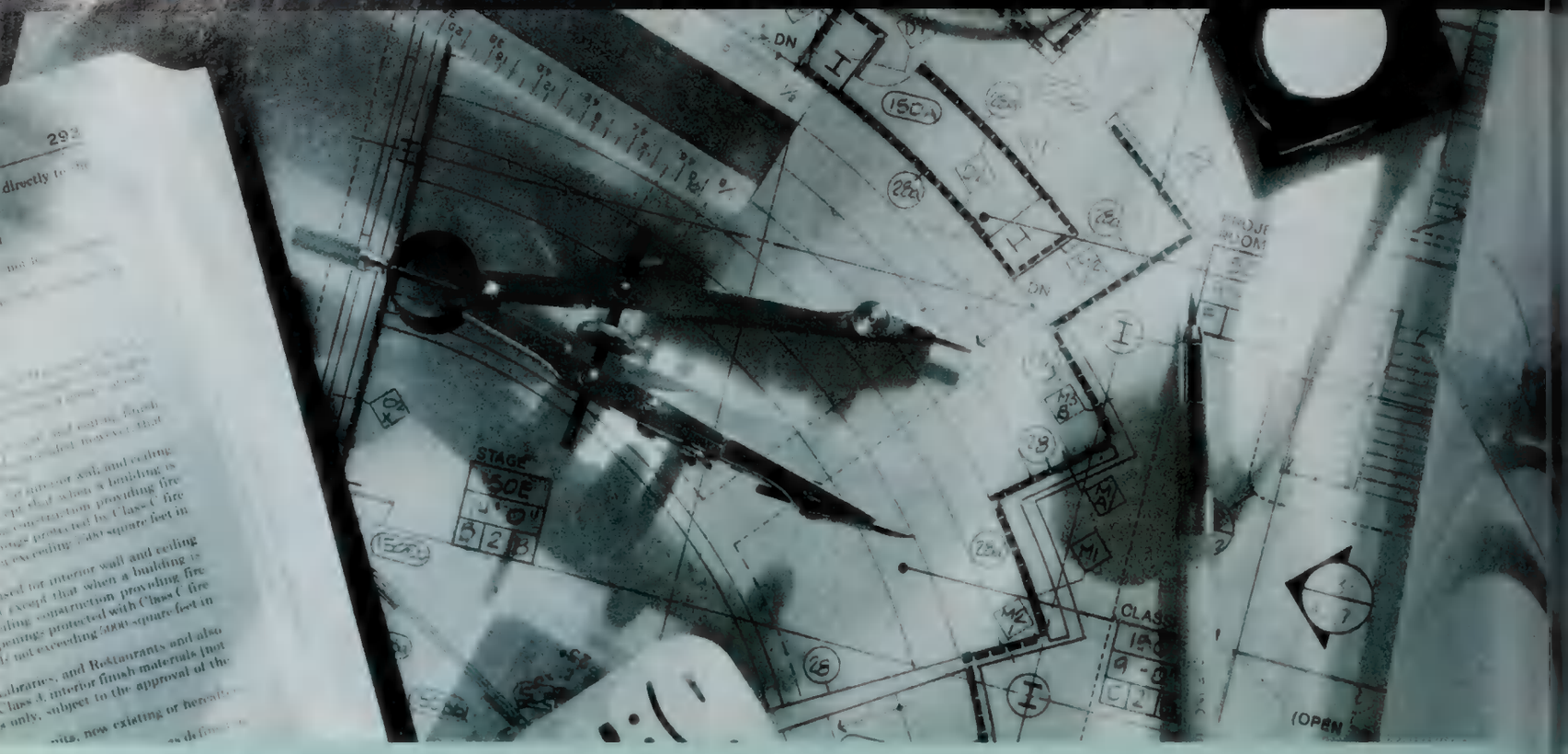


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NOT A LIMITATION.

Circle 2 on inquiry card



Chas McGrath

t Patwin Elementary School, he Steinberg Group ook advantage of a benign limate to use covered walk- ays instead of indoor orridors. Page 110.

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A theater, a warehouse renovated into an office, an apartment, a showroom, a shop, and an office are the editors' choices for next month's RECORD INTERIORS issue.

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Specifying entrances and storefronts.

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Cover: *Seward Hedges Area School, Chicago, Illinois*
Ross Barney + Jankowski, Inc., Architect
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SUPPLEMENT ON LIGHTING IS INCLUDED WITH THIS ISSUE
(with U. S. and Canadian copies only)

Pity the poor pedestal. . .

. . . so deserving, yet relegated to play the supporting role of faithful hero and selfless sidekick to monuments and mementi mori beyond count. It hardly seems fair.

Even by those who ought to know better, pedestals are often taken for granite (sorry). Mere footstools for the fabulous, ottomans for emperors, permanent soap boxes for once-windy orators, they are simply there. Like the best butlers in English novels, pedestals do their essential work without attracting attention to themselves, and thus their virtue is often measured by their invisibility.

But at Forms + Surfaces, the pedestrian pedestal is never a given. Witness four new variations of this oft-underwhelming theme, and be assured . . .

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Gold Medal: AIA Needs to Sort Out Process, Priorities

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Charles D. Linn, RECORD LIGHTING

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The embarrassing debate at the June AIA convention over a possible joint award of the Gold Medal to Robert Venturi and Denise Scott Brown [RECORD, Practice News, page 28) highlights some real concern over the vision and mission of the entire Gold Medal program.

At a time when education, affordable housing and healthcare, and sustainable development are begging for design attention, it may seem specious to be worrying about a small round piece of metal attached to a red ribbon. But as a major voice for architecture in the U. S. and globally, the AIA must realize that its choice of Gold Medalist sends a signal to society, to the profession and students, serves as a beacon to the serious general public, and becomes a building block in the historical record of architecture for the ages.

Therefore there are standards such an award must meet. AIA's Gold Medal winner is chosen by its Board of Directors "in recognition of most distinguished service to the profession of architecture or the [AIA]." This command is so vague as to place virtually no limit on the candidates to consider and still meet the criteria. But with nearly 40 Board members, elected like members of Congress to represent a given number of constituents, the selection process becomes so cumbersome and politicized that the winner tends to be one about whom there is the least dissension, rather than a choice that could run into controversy. Once the choice is made, the AIA's public-relations apparatus goes into high gear, and each February puts on a mammoth media event centered on the Gold Medal and its winner.

All of this raises some serious questions:

- Jurors need total independence. Unlike the Pritzker Architectural Prize, where a small seven-person jury acts with zero involvement from the sponsor, the Gold Medal Board-jurors know they are always under scrutiny from their constituents. This tends to discourage the kind of bold choices that yielded Alvaro Siza for the Pritzker prize.
- It's patently absurd to limit the award to a single person. The standing of the architectural profession at the grass-roots client level continues to suffer from the unfortunate image of the single self-indulgent star along the lines of Howard Roark in *The Fountainhead*, rather than of hardworking teams doing their best to provide high- quality design on modest, often socially significant projects, for modest clients. What does the profession gain when two architects who have had a huge impact on the form and content of architecture are denied the Gold Medal? The Architecture Firm Award, which is supposed to recognize teams, is treated as a poor relation on the publicity scale. It must be given equal time if the February event is to echo the genuine values of the architectural profession.

When the AIA Board meets next month, it should take a whole new look at the Gold Medal and its premises. For one thing, the very real concerns of the profession are not only the domain of the individual architect; and if the AIA is to reflect this, then the symbols and icons it chooses to recognize must fit the times.
Stephen A. Kliment

THIS BANK SELECTED US BECAUSE WE PAID HIGH



It looks less like a bank and more like an English country manor. But the charm of the Investors Savings Bank belies the challenges its design and construction presented. Particularly to Marvin Windows and Doors.

For one thing, fast-track construction scheduling was necessary due to constantly evolving design constraints. For another, it wasn't until thermal efficiency, condensation resistance and aesthetics were factored in that wood was chosen over aluminum. Consequently, Marvin wasn't selected for the job until construction was underway, making manufacturing and delivery deadlines extremely tight.



But Marvin's biggest challenge proved to be the building's three massive window and door assemblies, the largest of which measures 28 feet wide by 30 feet high. Using a combination of sturdy Magnum Double-Hungs and French Doors, Marvin not only built them on schedule, but also engineered them prior to delivery to guarantee they would withstand the strong, prevailing winds off the lake. And, like all 177 of the bank's other custom fit windows and doors, they were built with features designed specifically for the project. These include authentic divided lites, interior windows and doors glazed to match those on the exterior and a durable, factory applied finish in two complementary colors; Midnight Teal for the sash

TEREST.





and Graphite Grey for the frames.

Shortly after its completion, Investors Savings Bank was named the NAIOP Build To Suit Building of the Year. Which just goes to show that paying extra interest can result in some handsome dividends.

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Andrée Putman

Andrée Putman, ASID, interior designer and founder of Ecart, a Paris-based architecture and design firm. Putman strongly adheres to following her own beliefs.

THE POWER OF DIFFERENCE.

"I believe in freedom. We should all have the strength and authority to think for ourselves, to turn against what is expected. To pick up something in the dust or in the worst condition. Maybe it's not miraculous for everyone, but certainly for you this object has immense charm. "I like mixing things. Adding things that were never together before. Mixing rich materials with poor. Mixing something remarkably funny with a sad, boring material. There is always balance, which is full of contradiction. But after all, life is full of contradiction. "Carpet is like the sand in the desert. It brings something very sensual that is not only visual. It has to do with sound. And the charm of walking barefoot. In so many places there's no other solution."

Innovators like Andrée Putman challenge us at DuPont to continue leading the way with ANTRON® nylon. The carpet fiber top professionals specify most.

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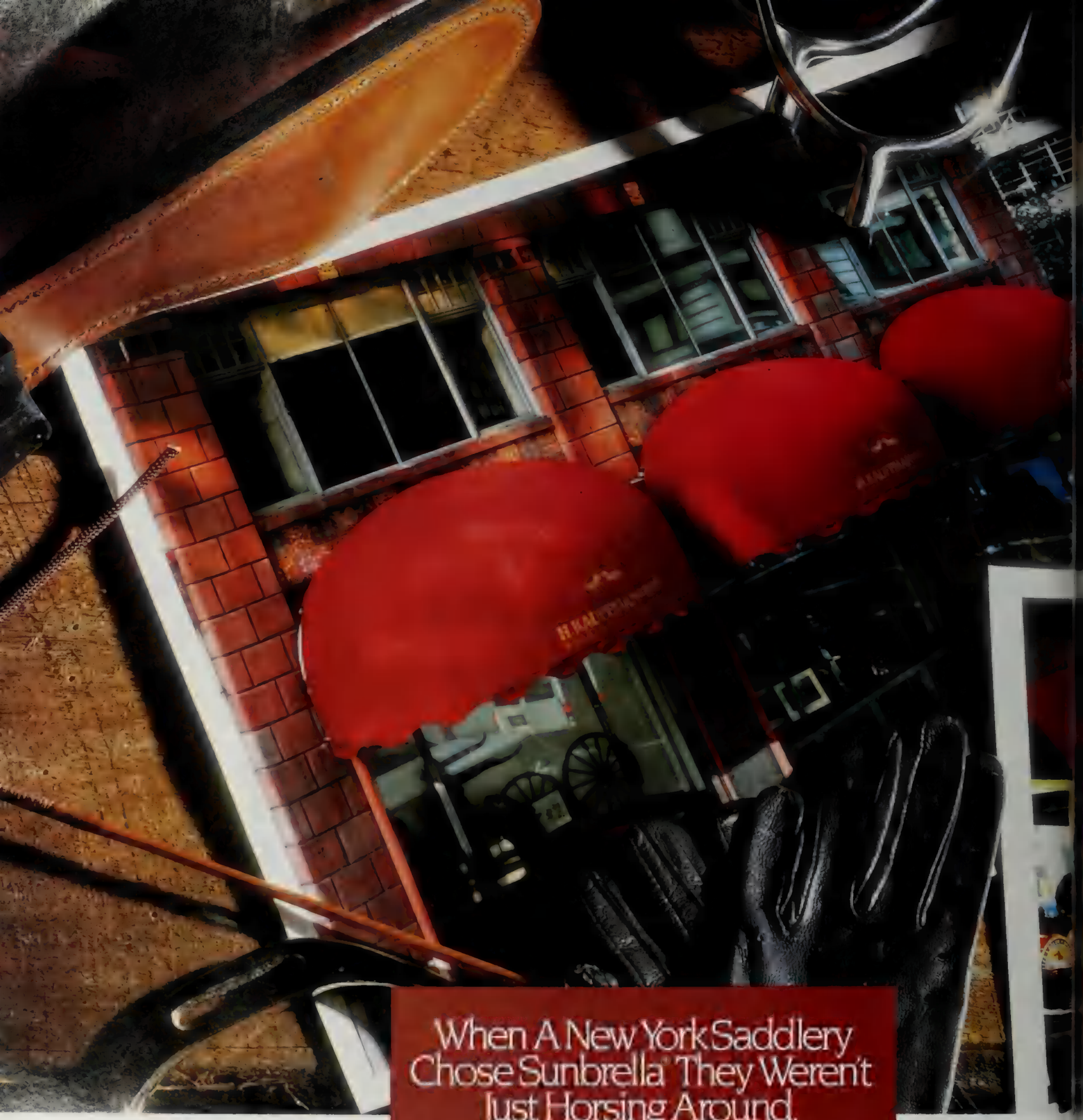


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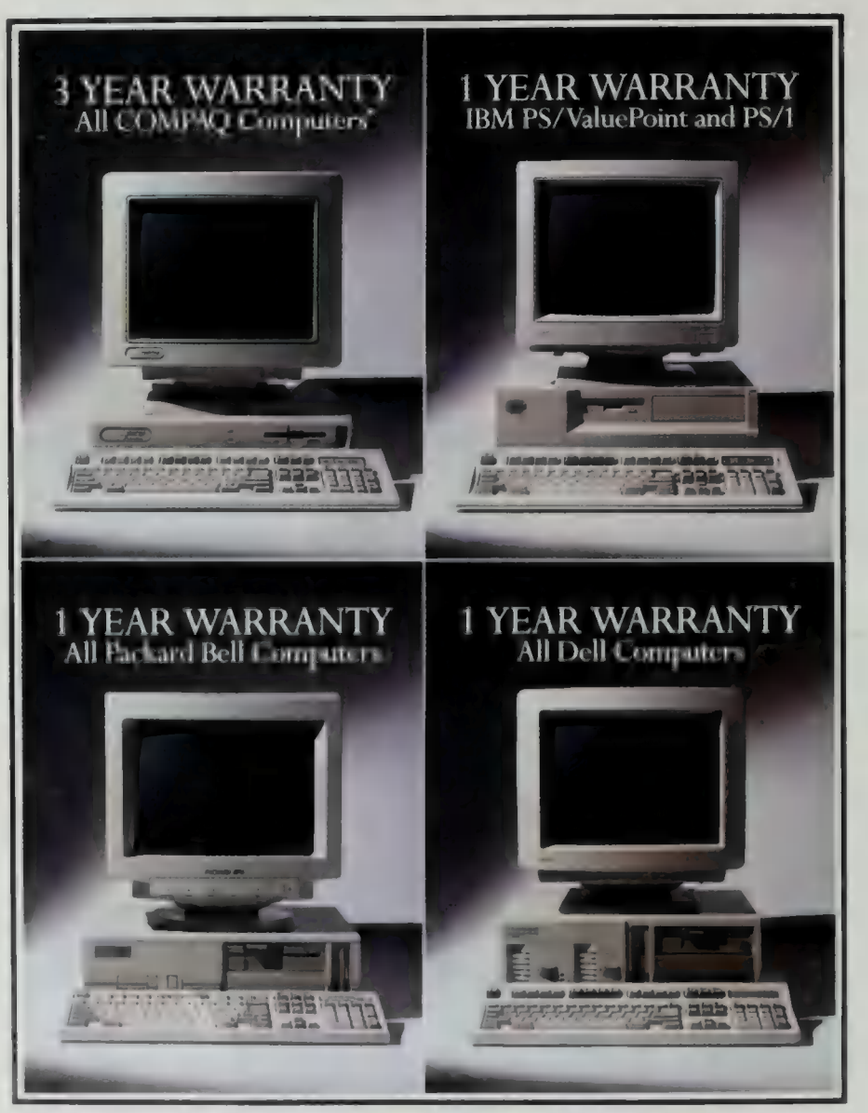
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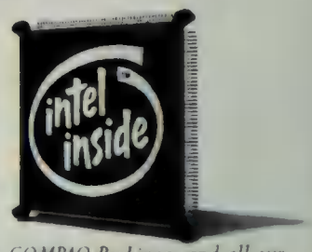


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SAFETY AND FIRE TECHNOLOGY INFORMATION FROM O'KEEFFE'S INC.

School District's Pyroswiss™ Test Proves Successful

San Francisco School District plans to reduce annual operating budget and provide enhanced safety for students.

Until just a few months ago the San Francisco School District's glazing problems seemed insurmountable. Faced with continued escalating costs from recurring breakage of wired glass the District's in-house glazing operation was working overtime just to keep up. In some cases they replaced a pane of wired glass over five times in the same door or sidelite during the school year.



San Francisco School District Sees its Way Clear

O'Keeffe's introduced 20/30 min. PYROSWISS to the school representatives with claims of up to ten times the strength of wired glass, clear vision and safety certified. The District's representatives were a bit dubious. Although they reviewed the test reports and viewed performance videos they felt the final proof would be its field performance. Two test locations were chosen which were known to be "high replacement" locations. They felt that if PYROSWISS could stand up in the final two months of the school year, during the rigors of day to day school activities it would pass. While the cost of PYROSWISS is higher than wired glass the School District felt the overall annualized cost would be significantly less.

San Francisco School District initiates program to end recurring breakage of wired glass using impact resistant PYROSWISS.

continued on page 2...

Wired Glass Injuries Continue Unabated

Injuries from wired glass breakage continue to escalate. Students are proven to be at particular risk. One recent victim was a 16 year old Connecticut high school student who received severe lacerations on his hand and arm. Tragically, this resulted in loss of mobility and permanent damage.

The student's attorney stated that the teenage boy was pushing open a door which contained a wired glass pane. He missed the press plate and his hand and arm broke through the wired glass pane. The court recently settled this case finding the high school negligent.



Reports of other recent incidents of injury from wired glass breakage include a high school student in Michigan, a basketball player in North Carolina, and a middle school student in Wallingford, Connecticut. All of these involved serious, permanent injuries with lawsuits filed.

Contracrime™ 45

Pioneered and Successfully Tested for Security Applications

Over the past two years O'Keeffe's has been working with Vegla in Germany, the manufacturer of CONTRAFLAM™, to develop a fire and security rated glazing product specifically for security applications. The culmination of these efforts was a fire test conducted at the Warnock-Hersey laboratories in Pittsburgh, California in April of this year.

Fire, Security and Safety All in One

One facility which has CONTRACRIME

continued on page 3...

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Performance and Aesthetic Comparison of Fire Rated Glazing Materials

	CONTRAFLAM™	PYROSWISS™	FIRELITE™	WIRED GLASS
Safety Glazing[1]	Yes	Yes	No	No[2]
Meets Code Requirement for 1 Hour wall rating (limits temperature rise to <250° F per ASTM E119)	Yes	No	No	No
May Be Installed in Standard Frames	Yes[3]	Yes	Yes	Yes
Security/Attack Options	Yes	No	No	No
High Wind Loading Resistance	Yes	Yes	No	No
Largest Listed Lites[4] (Area)[4]	48"x102" (4,896 sq. in.)	50"x93" (4,638 sq. in.)	35"x95" (3,326 sq. in.)	24"x54" (1,296 sq. in.)
Sound Transmission Ratings (STC)	48db[5]	28db	26db	28db
Visible Appearance	Clear/Colorless	Clear/Colorless	Yellowish-Tinge	Visible Wire
Optical Quality	Excellent	Excellent	Fair[6]	Poor
Daylight Transmission	85%[5]	83%	77%	83%

1 Safety glazing is required of fire rated assemblies in all Hazardous Locations.
2 Based on independent testing of wired glass from the four leading manufacturers. Wired glass failed to meet the minimum safety standards of ANSI Z97.1.
3 For 20/45 min. applications only, 60/90 min. require GPX framing system.
4 Or maximum area tested, may vary with rating period, check listing.
5 Based on 60 min. rating.
6 Applies to "Premium" grade. Optical quality for non-polished is poor.

For additional information please use reader service #97.

School's Pyroswiss Test Successful *continued from page 1...*

From 6, 8, 12, 10, 15 and 19mm available make-ups of PYROSWISS, 6 and 8mm were selected for the test.



Wired glass prior to removal



Reglazed with impact resistant PYROSWISS

PYROSWISS stands up to the test
After two months representatives from O'Keeffe's and the District met to review the results. None of the PYROSWISS panes were broken!



Not only is the School District delighted but now they can see their way clear to repair other areas that they previously could not have afforded due to budget constraints. As injuries from wired glass continue to escalate, the San Francisco School District is ensuring a higher level of safety for its students. The School District is planning on using PYROSWISS as a replacement glazing for wired glass in 20 and 30 minute applications as well as in new construction projects which require 20 and 30 minute draft and smoke control assemblies.

Let O'Keeffe's representatives show you how to reduce your costs and provide a high level of safety to your students.
Call or write us today. We will be happy to have our representatives show you the test reports and samples of PYROSWISS. Perhaps you too can make an adjustment to your budget next year. Or use reader service #95 for more information.

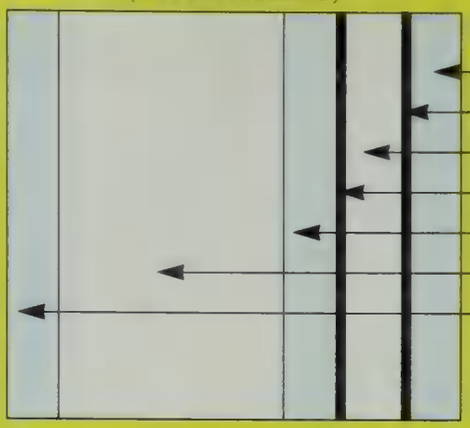
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CONTRACRIME 45

continued from page 1...

incorporated in its design is the Somers Correctional Facility in Somers, Connecticut. The intent for this project was to develop large, clear glazing units which would provide a more open atmosphere coupled with better visual security. The glazing had to meet all three criteria of a 45 minute fire test, an 18 minute security/attack rating and meet CPSC safety standards.

Pilot scale fire tests were completed and were followed by full scale California Department of Correction security and attack tests. Both with excellent results. The attack test included such implements as: a sledge hammer, a fire ax, a ball peen hammer and a propane torch.



CONTRACRIME Make-up

4mm	*Tempered Glass*
1.2mm	*Urethane Interlayer*
4mm	*polycarbonate*
1.2mm	*Urethane Interlayer*
4mm	*Tempered Glass*
18.5mm	*Gel Layer*
5mm	*Tempered Glass*
37.9mm	*(1.5") Thick*

4,896 Square Inches

The plans for the Somers Correctional facility incorporated several 48" x 102" horizontal lites. As these lites sizes exceeded the previously tested size of CONTRACRIME, it was required to test to the large size specified. O'Keeffe's built a hollow metal detention frame and the entire unit was subjected to a 45 minute fire endurance test. This was immediately followed by a hose stream test subjecting the entire glazing unit to 30 lbs. of cold water pressure. With the successful passage of the fire test and the hose stream test O'Keeffe's is able to offer a listed and labeled 45 minute fire rated glazing system close to four times the size of fire and safety rated products currently available.

CONTRACRIME Make-up

The make-up of "CONTRACRIME 45" as illustrated above consists of an outer layer of 4mm tempered glass, a 4mm polycarbonate layer, and a 4mm inner layer of tempered glass. This is followed by an 18.5mm layer of protective gel and a 5mm outer layer of tempered glass. Because of polycarbonate's characteristics to be scratched and become obscure it is necessary to protect it with an outer layer of glass. Since the attack side is generally well defined only one side of the glazing unit typically needs to be protected for security/attack. However, in cases where the attack side cannot be determined the "CONTRACRIME" make-up can be applied to both sides.

Security Applications

Since completing these tests architects, state correctional facilities, hospitals, school districts and various special building projects with requirements for a high level of security combined with fire protection and visual clarity have shown tremendous interest in this product. CONTRACRIME 45 is ideal where potential fire risks are coupled with a need for security/attack ratings.

For additional information on UL and WHI listed and labeled CONTRACRIME 45 or other special security make-ups please use reader service #96.

American Home Products Installs GPX

The Ultimate in Design Flexibility

For years architects and designers have felt the restriction of fire codes when it came to providing large vision areas. They were limited to wired glass, the 25% glazing limitation and small vision panels. With the introduction of GPX/CONTRAFLAM systemand its successful passage of ASTM E-119, a fire test for walls, designers can now open up large vision areas previously boxed in by solid walls.



The Architects of the American Home Products building in New Jersey took full advantage of the design possibilities of GPX (GLASSPROTEX). GPX/CONTRAFLAM systems were incorporated throughout the facility in 60, 90 and 120 min. applications. In one application the Architects were faced with providing the visual qualities of a typical curtain wall for a three story stairwell while meeting the code requirements for a 90 minute wall condition. GPX provided the solution with large multiple panels.

Other areas required 60 and 120 min. fire protection. 60 min. systems were incorporated in many of the interior corridor walls. The parking garage had a more stringent requirement for 120 min. fire protection. Vision panels of CONTRAFLAM CF-120 were used to meet this two hour condition.

GPX systems allowed the Architect to supply a design that was visually exciting, cost effective, and in full compliance with code requirements.

GPX 60 and 90 min. window/wall and door systems are listed by UL and WHI. *Reader service #98.*



O'Keeffe's Custom Skylight Division's Glazing Restoration Project

Como Park in Saint Paul, Minnesota is owned by the city of Saint Paul under the jurisdiction of the division of Parks and Recreation. In this park is a Victorian conservatory patterned from that of Kew Gardens in England.

Built in 1914 by the King Construction Company, New York, the structure is composed of a main circular area known as the Palm House, two wings opposite each other, the North House and the Sunken Garden, and the Vestibule wing or the entrance to the conservatory. The entire building was glazed with 1/8" thick shiplapped glass in a typical greenhouse fashion. This original glazing was demolished in a major hail storm in the early 60's. The roofs were temporarily covered with translucent fiberglass.

The restoration project called for a new glazing and framing system supported by the restored structural steel. O'Keeffe's Inc. was the successful bidder on all three phases of the restoration with a total contract amount of almost 3 million dollars. O'Keeffe's first contract was the reglazing of the 46' x 100' North House. The roof is radiused on both sides and peaks in the center to form a ridge. The whole length of [illegible] is furnished with operable [illegible] ventilation. The second contract was reglazing of the Sunken Garden. The structure is almost identical to that of the North House.

The final contract was the reglazing of the Palm House and Vestibule. This was the most challenging as it is the largest section and focal point of the structure. The main domed roof is 100' in diameter and is topped with another 42' diameter dome ornamented at the apex with a louvered cupola for ventilation.

The Conservatory restoration project was designed by Winsor/Faricy Architects, Inc. of Saint Paul with Mr. Bruce Tackman as the project Architect. O'Keeffe's custom designed a new extrusion system for the project. Since the aluminum rafters are supported by structural steel, it was designed to the minimum size of 1-1/2" wide x 2-1/2" deep. Snap-on anchor clips at the base of the rafters are mounted at steel locations. Rafters were rolled to radius to accommodate curved laminated glass composed of 2 pieces of 1/8" thick glass with a .030 clear P.V.B. interlayer, silicone glazed to the main rafters. Pressure cap clips are installed at the main rafter and cross-rafter intersections. A continuous rolled to radius snap-on cap cover is installed over the pressure cap clips and then "wet sealed" at both sides to the glass.

The most complicated aspect of the project is the intersection of the North House, Sunken Garden and Vestibule to the face of the main Dome of the Palm House. This detail calls for jamb rafters that are rolled to radius in two directions to follow the contours. For more information on custom skylights please use reader service #99.

O'Keeffe's Trade Show Schedule

To obtain first hand information on PYROSWISS, CONTRAFLAM, and GPX framing systems stop by the O'Keeffe's booth at the following trade shows.

Show	*Location*	*Dates*
Southeast Glass Expo	Orlando, Florida	Aug. 19-21
International Conference of Building Officials	Sacramento, California	Sept. 12-14
Doors & Hardware Institute	Vancouver, British Columbia	Oct. 16-19

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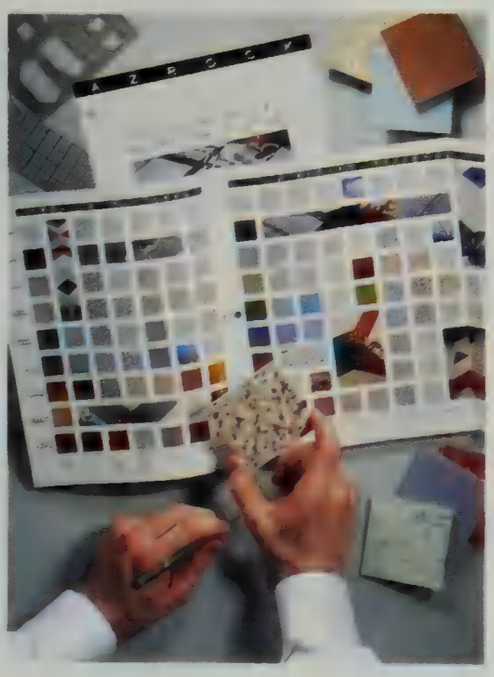
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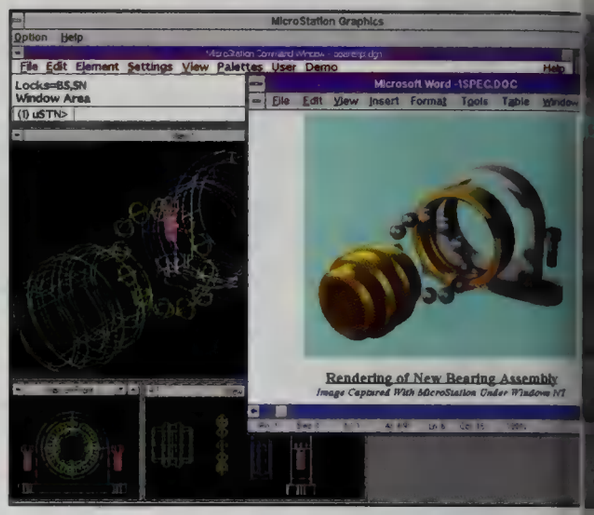
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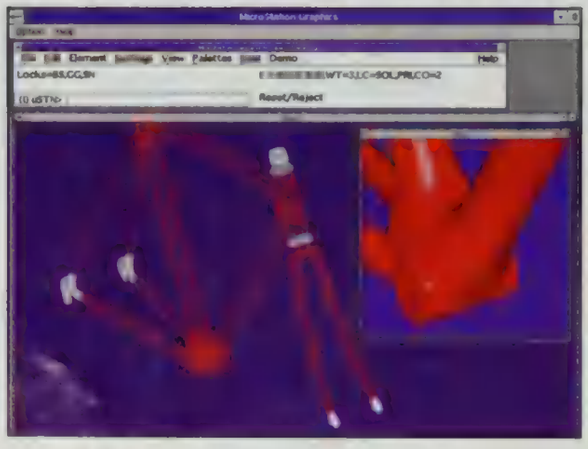


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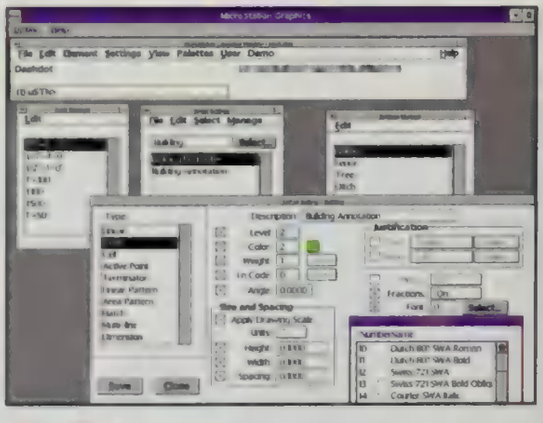
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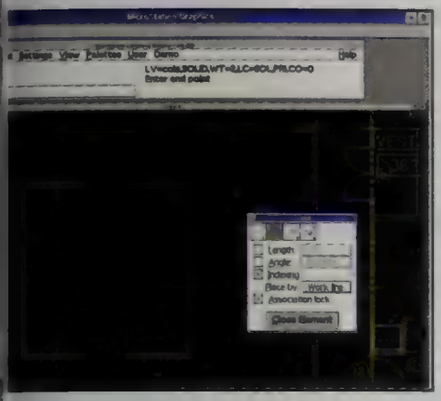
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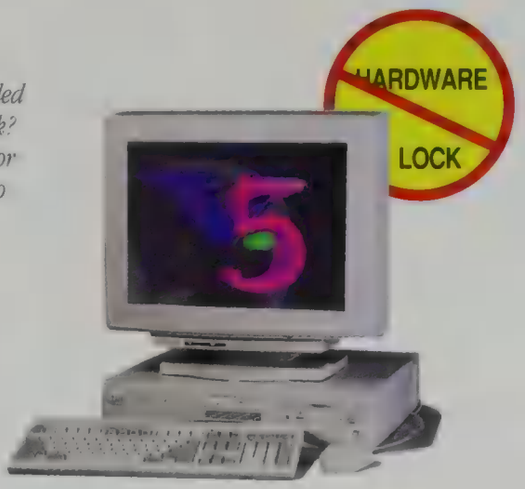
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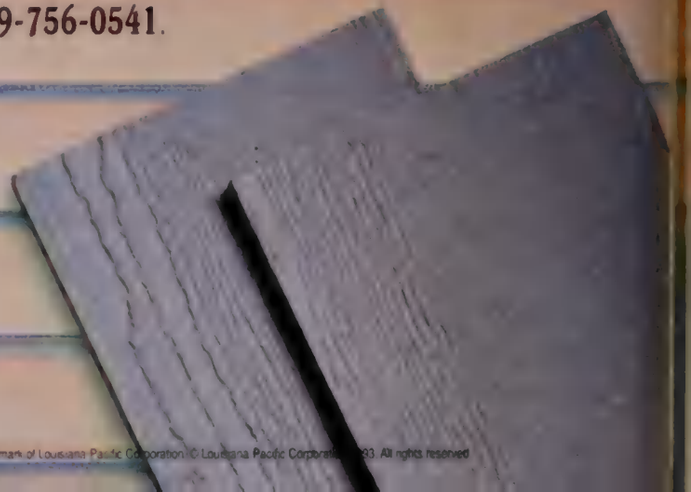
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San Francisco

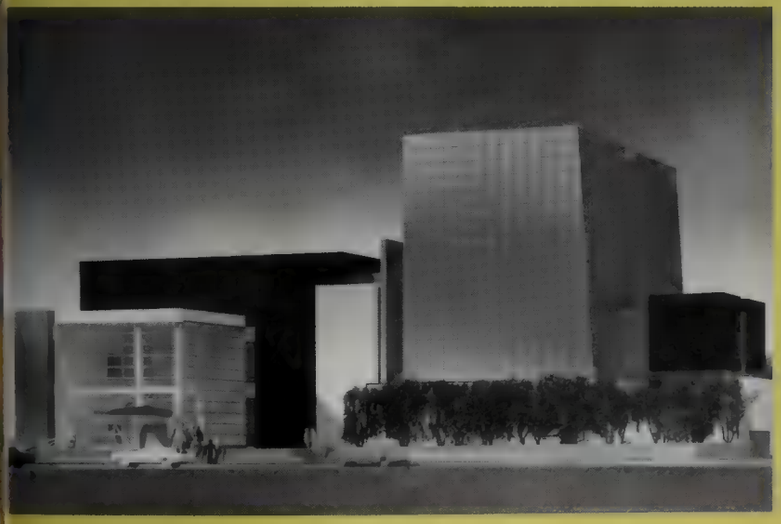
Maki, Polshek, and Botta Buildings to Bloom At Yerba Buena Gardens





Peter Xiques

2





Peter Xiques

4

an Francisco's 87-acre urban-renewal roject, Yerba Buena Gardens, is about to be- ome a cultural-arts center, with buildings by umihiko Maki, James Stewart Polshek and odd Schiemann, and Mario Botta.

Maki compares his horizontal 55,000-sq-ft enter for the Arts (4) to a ship, evident in s mast-like pole. An aluminum-clad exte- or, glass windows and entrances add to its ght-handed structure and ensure, in Maki's ords, "a large house" for performing-arts roups rather than a monumental cultural institution. It will open in October. Associate architects are Robinson Mills + Williamson.

Botta's 225,000-sq-ft San Francisco Museum of Modern Art (2)—his first U. S. commission—features a steel-and-glass skylight, mounted at 45 deg. on a granite-banded cylindrical turret. The whole turret intersects the front facade's majestic stepped-back, brick-covered tiers, each providing skylit roofs for galleries. Daylight from the turret skylight will pour into the museum's public atrium.

Polshek's 46,800-square-feet Center for the Arts Theater (3), with its distinct volumes, is a 752-seat stepped-back mass echoing the Botta museum's receding tiers.

Other major parts of Yerba Buena (1) include a five-acre Esplanade park by MGA Partners and Romaldo Giurgola, and the Moscone Center convention facility (Moscone South). Moscone North, beneath the Esplanade, extends from the Center for the Arts Theater northward under the Center for the Arts. *Susannah Temko*

Airports

Architects Design Airports That Capture the Meaning of Flight

High-design airports seem to be the rule these days. Seoul's new offshore airport (1) begins with a 56-gate radial terminal designed by Fentress Bradburn/McClier/Baum Hi-Lim Junglim Wondoshi to ease the earth-sky transition. Sweeping rooflines reflect aerodynamic forms and the rolling waves in the surrounding sea, as well as historical Korean structures. Skylights and open floors lead daylight to all levels. Landscaped interiors employ tiger and dragon myths. Long-range plans for traffic greater than O'Hare or LAX include two pairs of runways, 260 gates, remote concourses, a satellite transportation center, and a business building.

Holmes & Narver's 21-story LAX airport tower (2) embodies aircraft-derived geometries and metaphors of flight to address a city mandate for a monument to air safety.

Now that HOK is applying the parabolic arc symbol of air travel to New York City's long-demolished icon of rail travel, Penn Station [RECORD, June 1993, page 23], Cesar Pelli seems to be rebuilding the original as the new 35-gate, 1-million-sq-ft North Terminal at Washington National Airport (3). Pelli's design for an air gateway to the nation's capital relies on a series of 64 shallow handkerchief domes on soaring exposed steel columns, mullioned, arched curtain walls, and a system of 45-ft-sq structural bays. Leo A. Daly is architect-of-record; client is Metropolitan Washington Airports Authority.

HNTB's new 15-gate replacement terminal for T. F. Green Airport in Warwick, Rhode Island (4), will be a village-like mass of red brick and granite with a high central atrium. ■

Photo courtesy Fentress Bradburn

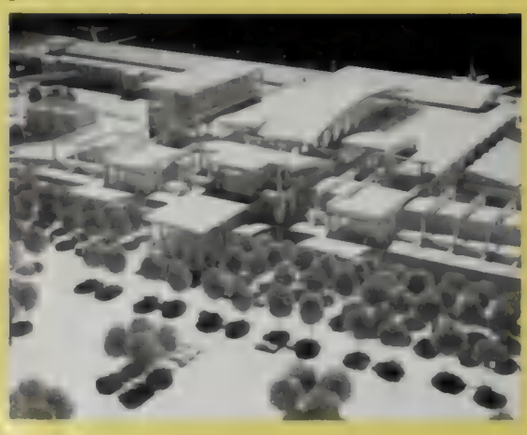


1



2





New Jersey

Elementary Architecture



"Design helps my students communicate and think in English, and sparks their creative juices," says architect/teacher A J. Gonzalez-Leonard (left in photo), who coordinates a bilingual program at Washington Elementary, Harrison, N. J. Every year 20 or so seventh- and eighth-graders participate. Inspired to enter a profession someday, some designed their own home/office. Others created context-sensitive schools, a project that challenged José Navarro so much (right, with school sketch) that he escaped gang life and went on to get his eighth-grade diploma. ■

California

New Delay Tactic Hits Salk Institute

Opponents of a scheme, now under construction, to add lab and administrative space to Kahn's Salk Institute for Biological Sciences have uncovered an obscure clause in the National Historic Preservation Act which requires design review by the Federal Advisory Council on Historic Preservation of any project that has received federal assistance. Section 106 calls for such a review whenever action by a federal agency is likely to affect a historic property. The Institute did indeed receive funds from the National Institutes of Health, but claims none were being used for construction. Asked for his reaction to the FACHP move, Dr. Jonas Salk told RECORD with a note of exasperation that construction was proceeding on schedule and that he didn't expect the effort to derail completion. The addition replaces a eucalyptus grove. ■

Design

Briefs

Winners

• Sir Norman Foster & Partners has won the first Benedictus laminated glass award, sponsored by the AIA/ACSA Research Council and DuPont, for the terminal at London's Stansted Airport, which features glass-lattice shell domes, glass walls, and fully glazed elevators. Daichi Amano of Washington State University won the student prize.

• Otis Elevator has honored architecture students Tomasz Rozwadowski of the Technical University of Gdansk, Morten Kirketerp of the Royal Danish Academy of Fine Arts in Copenhagen, and John Hreno and Ryan Smith of UCLA for their housing-design responses to problems in their home cities.

Strategic Moves

• Jack Hartray of Nagle, Hartray & Associates is acting dean at the Illinois Institute of Technology College of Architecture until the search for a permanent dean is completed.

• RTKL and the Mexican firm of Gomez Vasquez Aldana have announced a "strategic alliance" to jointly pursue assignments throughout North and South America, with a focus on commercial, mixed-use, medical, high-tech, and planning and urban-design projects. RTKL chairman Harold Adams, a member of the Services Policy Advisory Committee of the U. S. Trade Representative, has been involved in discussions on the North American Free Trade Agreement's effect on the delivery of professional services.

• Richardson Nagy Martin has signed a joint-venture agreement with Thailand real-estate developer Tong Gween Co., Ltd. RNM Pacific has already completed planning and design for Tong Gween Estates, a resort of mansion-sized houses in Parkchong.

Competitions

• Steel Institute of New York and Ornamental Metal Institute awards-competition entries must be postmarked by September 12. Contact SINY/OMI, 211 East 43 Street, #804, New York, NY 10017, 212/697-5553.

• National Organization of Minority Architects design-awards entries are due September 29. Call Cynthia Coe, 804/788-0338.

• November 15 is the deadline for the 98th American Academy in Rome fellowships. Write 667 Madison Avenue, New York, N. Y. 10021, 212/751-7200, fax 212/751-7220.

Remembered

George Lewis, New York AIA director from 1969 to 1986, died on June 25 at age 77.

Miami Beach

Isozaki Competition-Winning Scheme Adds Sculpture Garden to Bass Museum



Arata Isozaki's planned $18-million expansion and renovation of Miami Beach's Bass Museum will place a three-story stucco and Florida keystone addition behind the existing 1931 Art Deco structure and convert the park in front into a vast sculpture garden (done in collaboration with landscape architect Martha Schwartz). Isozaki will also work with various artists on a series of pavilions for site-specific sculptures, and with Miami architects Spillis Candela & Partners, Zyscovich Inc., and Frankel & Miller. *Beth Dunlop*

Chicago

70 Years of Sandburg's City

One of the most eye-popping exhibits to seduce this viewer in many years, *Chicago Architecture and Design, 1923-1993* virtually forces the visitor's immersion in the design paraphernalia of the past 70 years of Chicago, that most genuinely urban (and urbane), of American cities. Original drawings, architectural fragments and artifacts, paintings, models, photomurals are arranged in a series of eight wire-mesh-over-steel stud "tunnels" depicting planning, transportation, institutions, commerce, industry, shopping, houses, and recreation. In each tunnel visitors are greeted by appropriate sounds—fire engines, elevated trains clickclacketing across the Loop, a babel of street noises. Highlights include original working drawings of the Chicago Board of Trade (1928) by Holabird & Root, and early (1931) drawings for the Evanston lakefront scheme by the Burnham brothers. Stanley Tigerman (with Charles Smith) designed the exhibit and John Zukowsky of the Chicago Art Institute was curator. For those who won't make it before it closes August 29, it may be savored (in a way) through a 480-page book, available from the Art Institute. *S. A. K.*

Korea

Bridge Game



Tai Soo Kim Partners of Connecticut has won the competition to design the Tong Yang corporate headquarters, at 40 stories the tallest building in the Seoul city center. Curved structural ties top and bottom mirror nearby river and highway bridges. ■

AIA Convention

AIA Convention: Architecture at A Crossroads

"Designing for a sustainable future," the subtitle of this year's annual convention (Chicago, June 18-21) promised meaningful substance. Some 13,000 people showed up, of whom half were architects—a much better-than-average gathering, bolstered by 2,000 architects from abroad lured by the conjunction of the International Union of Architects.

A large crowd that came to hear a group of household-word architects discuss a topic labeled as "Architecture for the 21st Century" got their money's worth. Jean Nouvel made a case for a light, easy-to-transport building technology that is usable in any country, in order to achieve what he calls a "universally applicable architecture." Drawing a parallel from transportation, he cited motorbikes that are light and energy-efficient, capable of doing 1,200 miles to the gallon.

Much talked about later was the spirited difference of opinion between Helmut Jahn and environmental architect William McDonough over whether today's architects are really pushing the envelope enough in creating a sustainable architecture. McDonough, with more modest-sized buildings to his name and with amenable clients, claims he is meeting the goal, whereas most architects are still "designing steamships." Jahn, with a large body of work under his belt, including many megastructures, pointed out that he has had to work with available products to meet his clients' budgets and schedules. He also denied that energy conservation wasn't feasible with today's kit of tools.

Sir Richard Rogers declared we can easily [illegible] of the energy consumed by a [illegible] rethinking approach [illegible] mind foremost [illegible] scale of neighborhoods. This could [illegible] glass, [illegible] the later [illegible] of occupants [illegible] convention as an acceptable component in the indoor comfort equation.

As a sign that architects are able to balance idealism with horse sense, two consecutive afternoon practice seminars—one on managing small projects successfully, the other on surviving as a sole practitioner—rivaled in attendance a star-studded seminar billed as "New Stars: Architects and Social Responsibility." Run by architect James Franklin, the two practice seminars offered a useful mix of solid information and the opportunity to discuss pressing problems and issues. A surprise to many was a long, spirited discussion about employee moonlighting. Some principals encourage moonlighters because it shows enthusiasm, improves the quality of their work, and sometimes brings in commissions; others oppose it on the ground that moonlighting shows lack of commitment and raises questions of liability.

The much-publicized "Call for Sustainable Community Solutions" yielded 406 entries from 50 countries. The results merit coverage in a subsequent issue. After a belated announcement, Cambridge Seven Associates Inc. received the 1993 Firm of the Year Award for its creation of "joyful" places such as museums, aquaria, transportation nodes, and convention centers. In the business sessions, sharp debate marked a proposal to make Robert Venturi and partner Denise Scott Brown eligible for the AIA Gold Medal, currently limited to individuals. The motion to discuss the matter formally failed to attract the required two-thirds vote (See Editorial, page 9). L. Bradford Perkins became the third generation of Perkinses to be made a Fellow of the AIA. Perkins' father is founder of the Chicago firm of Perkins & Will. *S. A. K.*

The Kazakh connection

One morning, this reporter took some Kazakh and Bulgarian friends on a tour of the Loop. Walking up Dearborn Street toward the river, Tohtar Eraliev was grinning. Ahead of us was the Marina Towers. "I saw these buildings in the [American] magazines when I was a student [at Moscow University]. The world has changed and now I can come here to see them for myself." Eraliev is the past president of the Union of Architects of Kazakhstan and the designer of many prominent buildings in the capital city of Alma-Ata. His delegation of four, led by current president Serjan Shimerdenov, came to Chicago to seek the admission of their union into the UIA, as have groups from other CIS countries. (They were accepted.) Membership will open the world of information and professional contact to them. For many, like the 210 Bulgarians who made it to Chicago from New York by bus, this was the first chance in decades to travel outside their country. The success of the Chicago turnout shows the importance of improved communications. *Gerald Moorhead*

Kazakhstan Delegation: Serik J. Rustambekov, Tohtar Eraliev, Kaldibai Montahaev, Serjan Shimerdenov (President of Kazakhstan Union of Architects).



Gerald Moorhead

dge's Bad Luck in Washington May Be ood Luck for Boston's Waterfront

Robert Campbell

recent failure of Boston judge Stephen ver to get appointed to the Supreme rt may turn out to have a silver lining. ver, along with fellow judge Douglas dlock, has been a key figure in a re- kable effort to create a major public ding of true architectural and civic sig- ance in Boston, where he would have sorely missed. The building is the mas- new Federal Courthouse. It is being gned by Henry N. Cobb, of Pei Cobb d & Partners in association with archi- s Jung/Brannen, for a waterfront site, h is almost as prominent in Boston as is of the opera house in Sydney. And the ding, with 27 courtrooms and nearly e quarters of a million square feet, will ably be the most important addition to on of the 1990s, public or private.

y on, Breyer and Woodlock—acting ty much on their own—decided to act the clients for the building. They were wo youngest federal judges in town and red they'd have to live with the new ding the longest. So they would push the ernment to a new standard of civic excel- e. They helped pick the architect, then t six months introducing him to the teries of the judicial system. They ed pick the site, too, then followed ugh with an amazing commitment of and energy. "They are the best clients ever had," says Cobb. "No other client ever given me as much time."

looked for the best architect in the d," says Breyer: "We want to add a ding to Boston that can take its place Trinity Church and the Boston Public ary." Woodlock is a Louis Kahn fan who ntly took his family to see the Salk Insti- Breyer loves the Royal Courts of ice in London, by George Edmund et. Woodlock is the author of a brief chitectural History of the Federal ts in Massachusetts." Breyer was so





Federal courthouse and public space on Boston Harbor (top photo). Breyer in a courtroom mockup (bottom photo).

concerned to create an accessible populist building that, way back during the initial interviews of architects, he asked the test question: "Would you be willing to put birds and flowers on the beams in the courtrooms?" Flat abstracted stencils of natural forms are now in the works, as Cobb and his staff bone up on such works as G. R. Riegl's turn-of-the-century *Problems of Style.*

Woodlock occasionally gives talks to other judges on getting better courthouses, handing out a nine-page bibliography including William Faulkner: *"Above all, the courthouse: the center, the focus, the hub . . . musing brooding, symbolic and ponderable, tall as cloud, solid as rock, dominating all . . . The courthouse was theirs, bigger than any because it was the sum of all and being the sum of all, it must raise all of their hopes and aspirations level with its own aspirant and soaring cupola."* Both judges are eloquent about the role of the court as an institution. "We want to create a place of civic convergence, of civic enlightment and entertainment," says Woodlock. "My mother comes to my court to watch human theater. The jury is the last direct democracy, where citizens can directly affect government."

As does Harry Cobb, Breyer and Woodlock relish the memory of early American one-room courthouses, places with front porches that symbolized interaction with the community. They were courtrooms from which judge, lawyers, jurors, claimants, and spectators could all retire, together, to the tavern next door—the "ordinary"—for ale and talk. Because the courthouse is a federal building, the designers could probably ignore local and state regulations and opinions. But the judges encouraged the General Services Administration to involve a more public process. The GSA agreed to pull the building back from the edge of the water to allow more public space, although not as far as would have been mandated by state law. Not everyone thought this pullback was a good idea. Opposed were the architect and the city's extremely capable design review board—the Boston Civic Design Commission, chaired by architect Joan Goody—both of whom thought the courthouse should interact with the water, rather than withdraw from it. They lost that argument.

The GSA also liked the idea of a task force, which would include representatives of all concerned groups, empowered to make recommendations for its public features—such as a proposed public park on the harbor side of the building, and the public spaces inside the building. The task force included members of the Boston Society of Architects and the Boston Society of Landscape architects, along with public officials and interest groups of all kinds. The judges sat in too. A

Continued on page 130

Tragedy of Andrew Rolls On

As the one-year anniversary of Hurricane Andrew nears (August 24), assessments by a wide range of experts paint a consistent if inevitably incomplete picture of why the storm wrought $25 billion in damage and displaced some 80,000 from their homes. (The previous record holder for monetary damage was 1989's Hurricane Hugo, at $7 billion.) While the reports tell us how a wide variety of construction techniques fared in an extraordinary event, they also say much about the efficacy of many systems under less severe conditions, such as aging. Reconstruction also uncovered an ominous pattern: the web of responsibility and accountability among designer, builder, and enforcement official broke down in Dade County. It has yet to be fixed.

Systematic failure of some assemblies

Though experts still debate the storm's actual wind speeds, most engineering analysts have concluded that buildings complying with the strict South Florida Building Code consistently survived the storm structurally intact. An enormous proportion of destruction, researchers found, was due to noncompliant construction. Saving a few dollars, in some cases, cost the building.

The web of responsibility and accountability among designer, builder, and enforcement official has broken down in Dade County. It has yet to be fixed.

While all kinds of buildings were damaged or destroyed, some assemblies and certain components performed particularly poorly. Such systems typically lacked innate redundancy, or, to be wind-resistant, the system required close attention to field craftsmanship. *Every* wind-resisting component needed to be properly attached to supports, analysts say, establishing an uninterrupted load path to ground. Clearly many designers and builders ignored or didn't understand this concept.

- *Wood-frame gable ends:* Thousands of houses were destroyed because builders had failed to nail sheathing according to code (6-in. o. c. at panel edges and 12-in. o. c. at intermediate supports—a simple requirement). Inspectors found panels tacked in place. Nailing at more than double allowable spacing was common among destroyed buildings. Use of sheathing staples [illegible] strength than [illegible] supports. [illegible] typically made-[illegible] nails, as were bar joists to the supporting system.
- *Pre-engineered buildings:* Manufacturers constructed newer structures with fewer roof braces and wider spacing of purlins and girts. More conservative designs worked better. Large doors often collapsed.
- *Trailer homes* in the path of the storm were leveled. Though Dade has special tie-down requirements, manufacturers use less-restrictive HUD nationwide standards. Factory-built modular homes generally fared better than other wood-frame buildings.
- *Roof coverings:* Few types of roofs survived Andrew's onslaught. Asphalt shingles, especially when staple-attached, fared worst. Low-slope built-up roofs and other fully adhered systems performed best, though gravel embedded in the membrane frequently became airborne, damaging surrounding buildings.
- *Lightweight cladding:* Composite-wood cladding panels and Texture 111 panels showed premature rot and tore away from fasteners. Flanges of metal-stud systems supporting exterior non-loadbearing walls sheared off. (In one building only one screw attached each stud at top and bottom.) Properly framed wood-stud partitions did a better job of bracing exterior walls than did similar metal-stud walls. EIFS (synthetic stucco finish over insulating boards attached through sheathing to studs) failed at lower wind speeds than other systems, even where the stud-wall supporting system remained in place, according to a report by an interdisciplinary investigative team.

Heavy construction, such as reinforced concrete block with stucco finish (CBS—a commonly used combination in south Dade) performed well, according to Ronald F. Zollo, who prepared the report. Zollo, an engineer and professor at the University of Miami, credited "greater mass and overall structural stiffness."

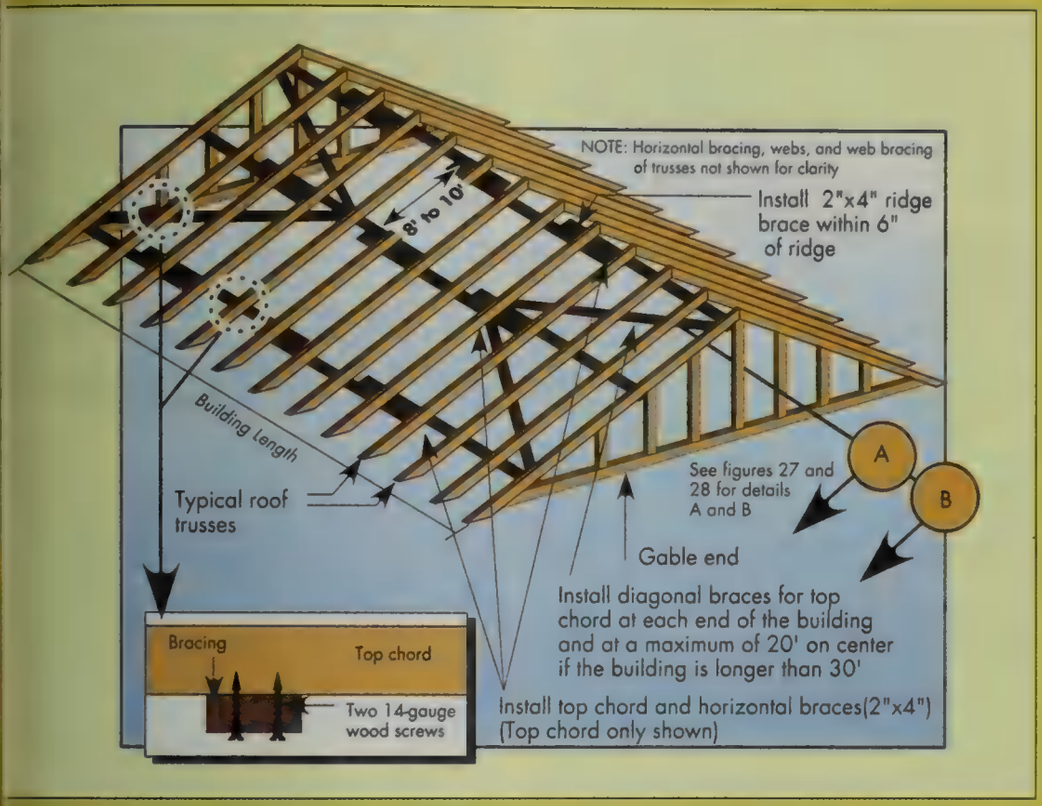
In structures such as warehouses and hangars, the loss of doors and windows create full internal pressurization which, accordin to Joseph E. Minor, a University of Missou expert on wind effects, "effectively double the pressures acting to lift the roof and to push side and leeward walls outward." Many collapsed. In these cases, neither the designer nor the code likely allowed for th actual forces developed. In both residentia and non-residential construction, unprotected doors and windows broke open, exposing the interior to total destruction, even when the envelope remained intact.

Proposed building-code changes will proba bly mandate missile-resistant glass or shutters.

The code will probably call for more latera bracing of wood-frame gable ends and a s tem to add backup for wood-truss roofs (opposite). Dade county banned oriented-strandboard sheathing after the storm, bu researchers found no difference in performance between structural-rated non-venee panels and plywood.

Code passed; enforcement failed

The major lesson of Andrew is that south Florida's strict code did not fail in the face Andrew; rather it was builder indifference and a notoriously inadequate system of en forcement. "Damage followed the rigid lin of subdivisions, not the whimsy of the wind," reported Zollo. "Construction quali and design largely determined the degree hurricane damage." Since then, efforts to augment Dade County's enforcement staff have lagged. Robert Barnes, an architect



bracing assembly recommended by FEMA backs up the diaphragm action of eathing attached to wood-truss roof framing.

ith his own firm in hard-hit Homestead, ys that code officials' first response "was blame all the developers and hide the fact at their inspection abilities were very poor. ıen they tried to blame insurance mpanies."

early all residential and non-residential ructures in the affected area were spec- uilt with little or no architect/engineer volvement. Under these circumstances, the ıly one to assure adequate construction is e builder, an arrangement that clearly iled catastrophically.

ıgineers in, architects out

ıough construction deficiencies far out- ripped design errors, Dade County's early action was to permit only an engineer—ıy kind of engineer—to seal drawings. "No ıe at the county will admit that there are t enough inspectors and they're not ained well enough," says Roney J. Mateu, esident of the Miami Chapter/AIA and di ctor of design for Harper, Carreno, Mateu rchitects and Engineers. Under threat of a wsuit, a memorandum amends the ordi- nance for now to continue to permit architects to seal drawings. "The county is run by engineers," explains Mateu.

In the meantime, "inspection is worse than before," says Barnes. "Owner-builders can pull permits for up to $50,000 without sealed drawings. Some take eight and a half by eleven sheets of paper, scribble wallboard, doors, and windows on them, and they are able to pull permits." Barnes, who has added inspection services, reports, "In one [ostensibly repaired] place . . . my inspector found a half-inch gap between the plywood truss and the plywood. There were no nails attached to the rafter. This house had a certificate saying it was inspected by some engineer in Palm Beach. In another case I saw an engineering form that said the house met all building codes. The name and address of the owner were blank. A builder could use this wherever he wanted." Incredibly, he says, "an engineer signed this."

Planning to avert storm disasters

Though reports of shoddy reconstruction are widespread, neither the insurance industry (which is reeling under $16.4 billion in covered losses, vastly in excess of prestorm assumptions), nor the Federal Emergency Management Administration (FEMA), have done much to push the county beyond its short-term, politicized focus. Insurers are considering whether to rate communities according to the strength of local codes and enforcement, says John Mulady, chairman of the building codes subcommittee of the insurance industry's Natural Disaster Loss Reduction Committee. Communities are required to adopt and enforce FEMA standards to be eligible for (privately unavailable) federally underwritten flood insurance. Though FEMA regards non-compliance with codes in the wake of Andrew as "a major problem," according to John Gambel, chief of the Technical Standards Division, he is not aware of any south Florida community that is currently on probation or has been dropped from the program.

A spring conference, sponsored by the University of Miami's architecture school and the Knight Foundation in Miami emphasized that disaster mitigation includes response, relief, and recovery. Aid programs too often ignore the latter. Recovery should include, for example, disaster-aid grants or insurance that picks up the added costs for reconstructing houses to meet updated standards. And predisaster plans usually ignore means to avoid the sloppiness of hurried rebuilding. Participants pointed out that disaster preparedness for earthquake regions is far more advanced, offering a model for the far greater number of communities that may lie in the path of major storms. *James S. Russell*

Further information

"Hurricane Andrew: August 24, 1992," by Ronald F. Zollo. Department of Civil and Architectural Engineering, University of Miami, Coral Gables, Fla. 33124 (305/285-9543).
"Building Performance: Hurricane Andrew in Florida," published by FEMA (FIA-22, 2/93). FEMA Publications, 500 C Street, S. W., Washington, D. C. 20742
Specialized reports: American Plywood Association (206/565-6600); American Wood Council (1250 Connecticut Avenue, N. W., Washington, D. C. 20036). ■

Facilities Sport Athletic Engineering

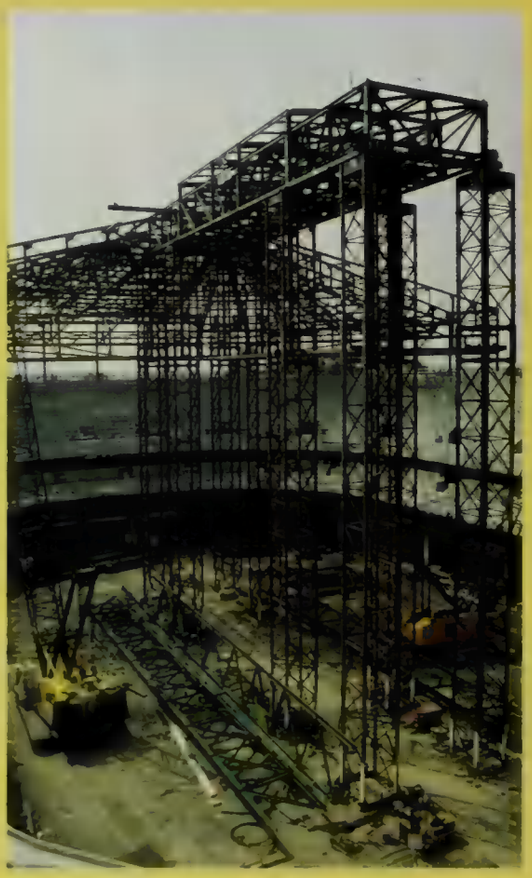
Each decade spawns its own large-urban-facility fad. In the '70s it was domed stadiums; in the '80s, convention centers. Cities today are competing to erect specialized sports and entertainment facilities. This trend may stem from the widely publicized success of Camden Yards, in Baltimore, which combines sensitive urban design with a television-friendly image.

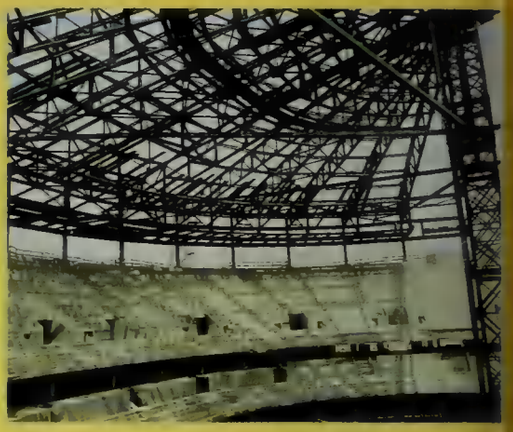
While huge multipurpose facilities were in vogue 20 years ago, today's fans want (and teams have the clout to demand) facilities oriented to individual sports. Hence, close to a dozen cities are planning, building, or have completed enclosed arenas. Though cities increasingly look for a unique image, and newer facilities feature dramatic architectural designs, the projects are at base engineering-driven. Further, clients demand fast schedules and strict cost controls, which keep designers focused on straightforward solutions.

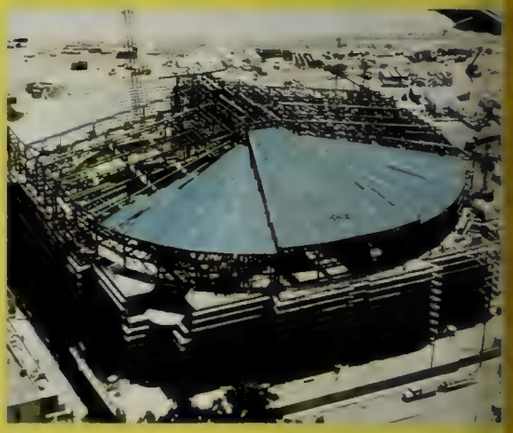
To handle national tours and teams, arena criteria are quite similar: seating between 17,000 and 19,000 for basketball and hockey crowds, and sophisticated provision for the lighting, sets, and rigging required to stage events ranging from Bon Jovi to Barnum and Bailey's three-ring circus.

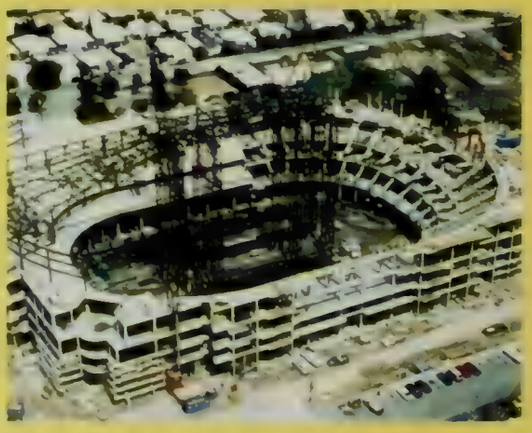
Arena roof structures in America eschew structural drama. "Larger spans may require more dramatic solutions—cables, masts, domes—but it is very reasonable to support the typical 410-ft span with trusses," says engineer William LeMessurier. (A retrofitted stadium is shown on page 94). Though a two-way space frame system might use less material, says Charles Thornton, of structural engineer Thornton/Tomasetti, the shoring, staging, and connection complexities more than make up for the material's lower cost.

The following pages show that [illegible] are applied to most sight [illegible] conditions of cost, [illegible] ripe for [illegible] Collectively, [illegible] held by the [illegible] discovery [illegible] of conditions [illegible]







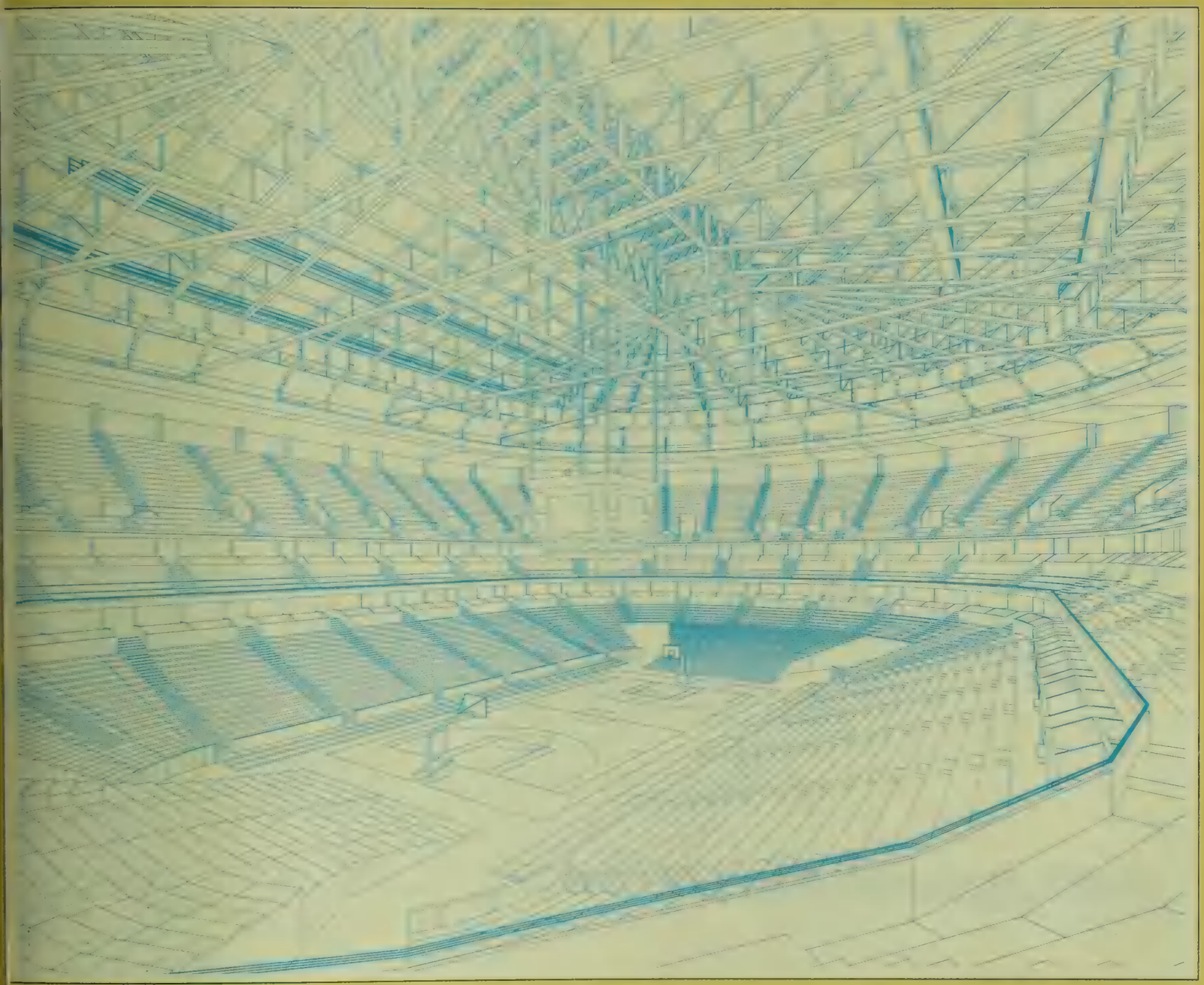




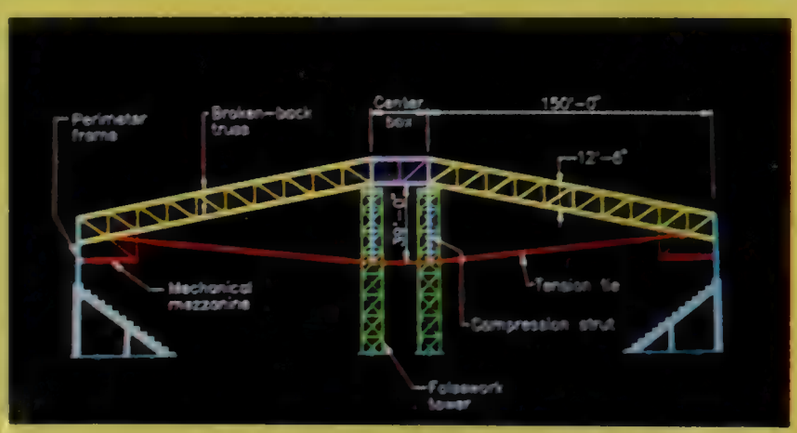
Anaheim Stadium, California

Awaiting only finishing touches, this 19,000-seat arena, designed by HOK Sports Facilities Group, of Kansas City, departs from the norm in two ways. The design is intended to eliminate the need for expansion joints within the cast-in-place arena bowl. (These joints would be large because the facility is in seismic zone 4—the most severe exposure—and difficult to maintain.) More significantly, structural engineers Thornton-Thomasetti departed from the usual lineup of identical one-way trusses in designing th 440- by 325-ft roof system by using a combination of radial and straight tied-arch trusses framed 150 ft into a central box. A one-way system, the 12.5-ft-deep straight trusses, which rise 28 ft from their spring point, are the compressive element of the arch. Queen posts extend 39-ft down from the box, connecting a wide-flange-section tension member from stands to the central box (opposite top and bottom). Though the effective depth of the truss is about 50 ft, the roof looks light and little encumbered b

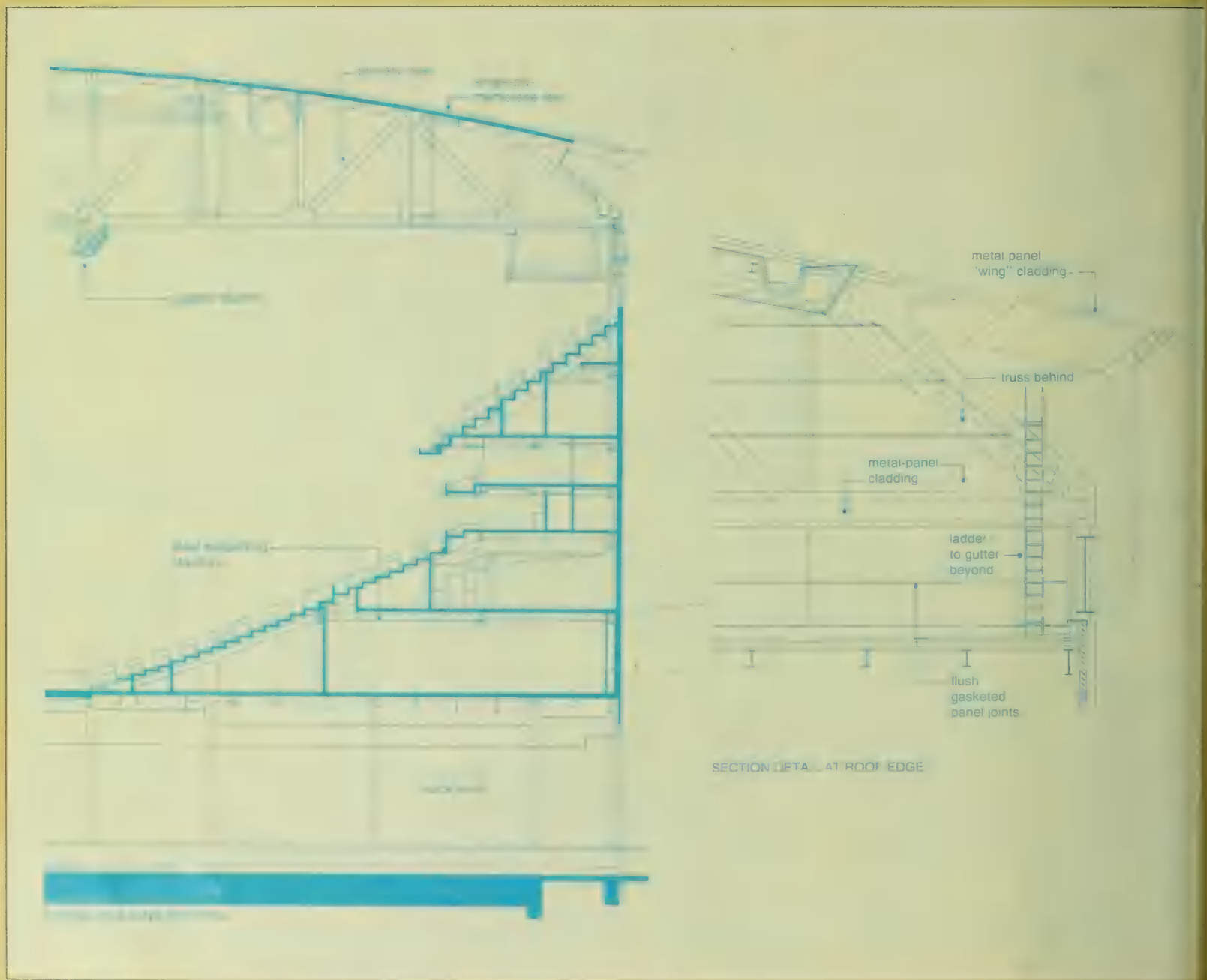
Time, cost, and construction constraints drive the design of long-span arena roofs.



tructure. The system also offered construc-
ion advantages. Eight erection towers at
he center of the field simplified lifting the
lements into place (sequence photos oppo-
ite). Erection followed completion of each
ection of the concrete bowl. The architects
xpressed the structural system on the
netal roof by pushing up a monitor at the
eak and creating recesses at the pie-shaped
adial sections. (Reduced spans meant that
hese needed to be only 7.5-ft deep.) *J. S. T.*



Two arenas by Ellerbe Becket demonstrate how straightforward means can yield dramatic architectural form.

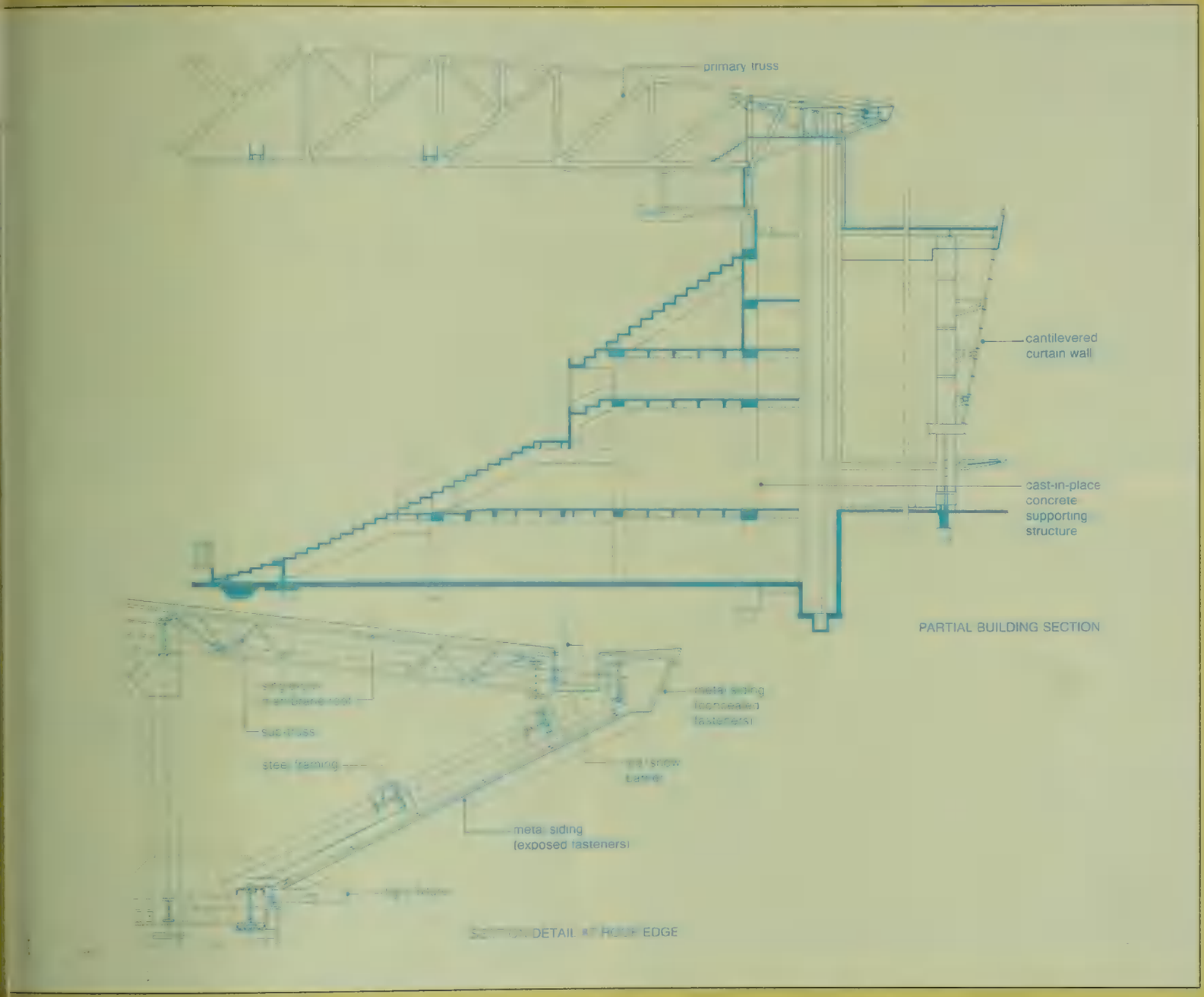




Shawmut Center's transit-system trac...

Shawmut Center, Boston

Due for completion in September 1995, this steel-framed replacement for the Boston Garden is hemmed in by existing construction on all sides, which causes it to be "among the smaller arenas" in this category, says Tom Beckenbaugh, chief architect for Ellerbe Becket. The top chord of the one-way truss system (designed by LeMessurier Consultants) is curved to give the roof its signature form. The trusses range to 30 ft deep and span 309 feet. "It's a practical proportion at a depth of about one tenth the span," says William LeMessurier who feels the structure meets his criteria, being "elegantly frugal." The roofs on this project, as well as the Kiel arena (opposite), and a number of other recent projects are, according to Gary Harper, Ellerbe Becket's chief structural engineer, "influenced by the work of [New York partner] Peter Pran." He explains: "It's simple to do these sweeping curve shapes with one-way trusses. We've also found the pricing on trusses the most economical." *J. S. R.*





The Kiel Arena's generous overhangs cantilever from the main trusses

Kiel Arena, St. Louis

The concept of this arena is much like Boston's, but Ellerbe Becket's Kansas City office, which specializes in sports facilities, engineered it using an in-house team assembled only a few years ago, and led by Gary Harper. Kiel also has a one-way truss system, though it is set on a poured-in-place arena-bowl structure. The 10 major trusses, spanning the 345-ft short direction, are braced by two trusses in the long direction. Subtrusses span between trusses and cantilever to support the building's dramatic overhangs (detail above.) In designing the trusses, computers analyzed 100 possible load combinations in three dimensions, taking into account the building's dead loads as well as live loads from wind, snow, and as much as 120,000 lb of concentrated load from assorted stage-rigging configurations. Since the truss fabricator's shop is only two miles from the site, the trusses will be shipped in quarters, and erected in halves using one erection tower per truss. The contractor will complete work in 1995. *J. S. R.*

Rome's 1930s stadium was updated with a cantilevered, fabric-roof structure supported outside the existing bowl's perimeter.



1



2



3

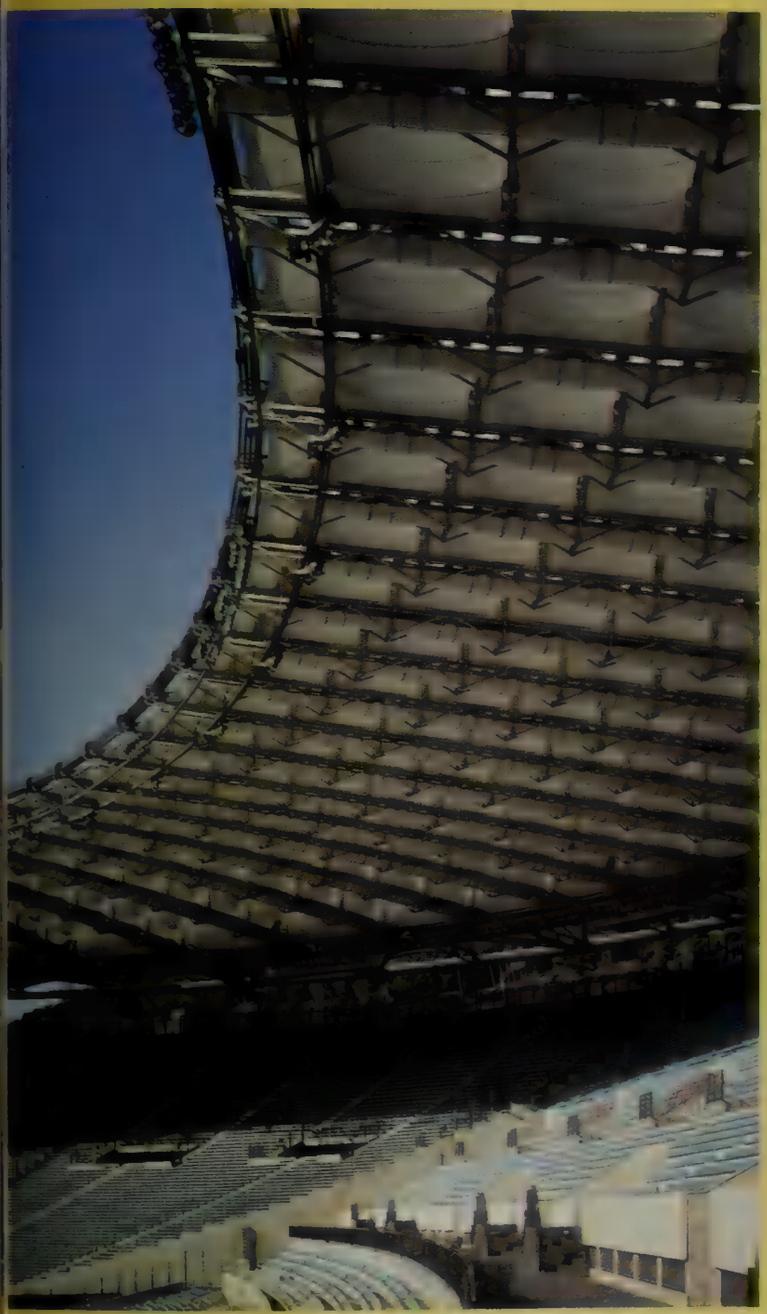
Olympic Stadium, Rome

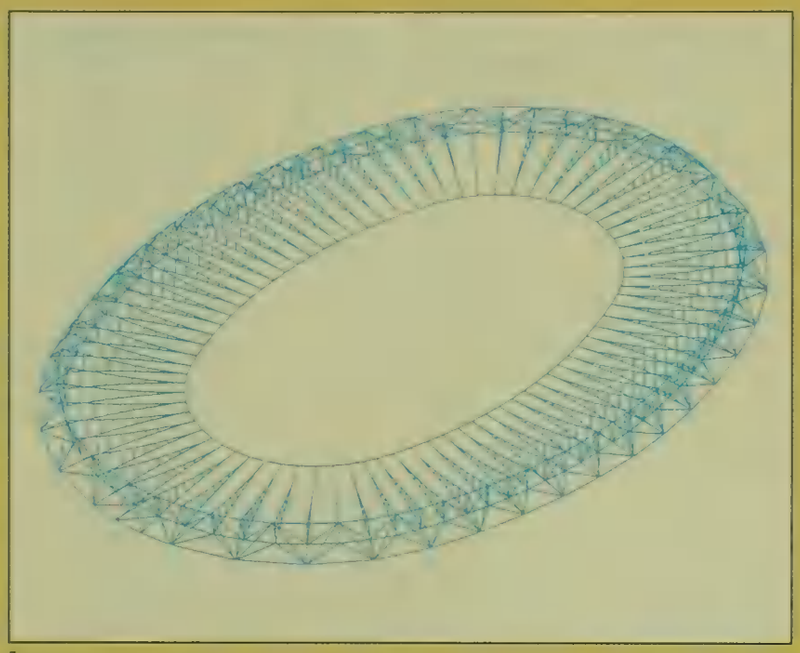
In 1987, Rome was chosen as site of the 1990 World Cup, but the city's stadium, dating from the 1930s, and twice enlarged, did not meet the organizers' standards. Discarding the idea of building a new facility out-of-town, [illegible] elected to reconstruct the existing stadium, expanding its capacity [illegible] and adding a roof.

[illegible] design and construction [illegible] meet the short schedule while making 60,000 seats available for play during construction. The engineering criteria included a desire for a very light roof, since it couldn't rest on any of the existing structure, and one with sufficient redundancy so that local failure of any component would not ripple throughout the system.

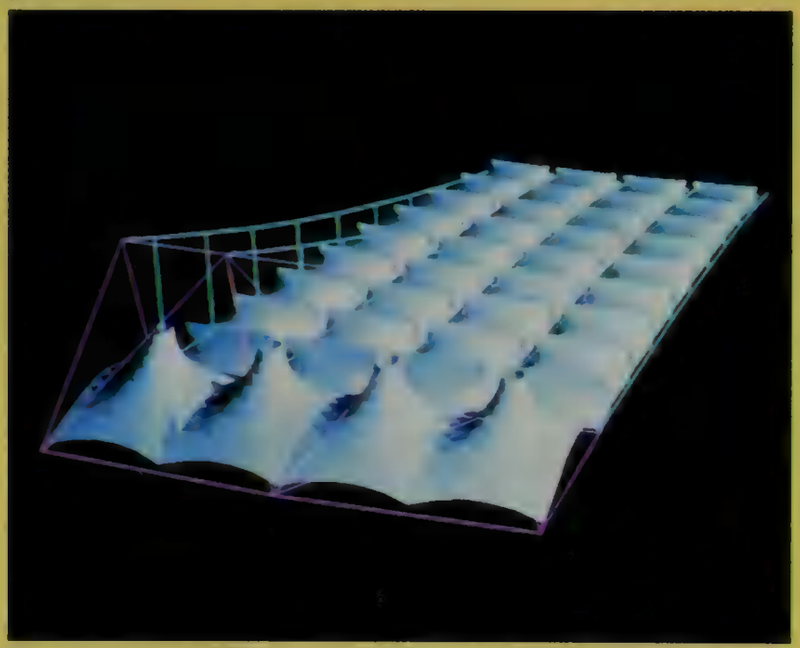
The scheme, by a design team comprising Studio Zucker (architecture) and engineers G. Caloisi, of Italprogetti, s. r. l., and Massimo Majowiecki, of Studio Tecnico Majowiecki, placed the new roof's 16 195-ft high concrete columns completely outside the seating envelope (photo 2). These support an oval external anchoring ring (1), which itself cantilevers over the stands. It ranges from a diameter of 1,020 ft to 715 ft. The external ring comprises a tubular truss that is triangular in section and nearly 20-ft deep. From it, beam-and-tension-cable trusses cantilever in a radial pattern toward the center (5 opposite).

At the inner edge of the roof, a ring of 12





5



6

lvanized cables, each 3.4-in dia, balances e horizontal stresses transmitted by the dial trusses. Teflon-coated fiberglass roof- g fabric (Sheerfill, made by the U. S. firm, rdair), was stretched over frames to make allow vaults between the radial trusses (4) d conelike sections within the external- ıg truss (6).

e external truss was largely prefab- ated, assembled into larger components site, and lifted into place. Erection teams d out and preassembled the internal cable ring and radial trusses on the stands. A temporary pulley and backstay system was attached, then eight teams lifted the entire ring and truss system into place. Cranes placed secondary trusses supporting the fabric panels, over which teams stretched the translucent fabric. External ring assembly took five months; the cable-truss system was assembled in five months and erected in five weeks. The fabric roof took one month to apply. *J. S. R.*

Beyond Wheelchairs

By Peter Slatin

When it came into full force in 1991, the Americans With Disabilities Act (ADA) may have felt to architects like a big new brick in the load of regulations they are forced to haul to each project. To some, this load increasingly replaces the discretionary role of the architect in design with the aggravations of bureaucracy and the impersonal nature of code compliance. Though the ADA is presenting some sticky questions, it's still in the shakedown phase, and architects are learning to turn the regulations to their advantage, exploring new design possibilities.

Making the ADA accessible

Critics say the ADA contains too much that overlaps or duplicates existing regulations. Disabled groups fought hard for the Act's passage, asserting that its federal status makes an enormous difference. John Del Colle, associate executive director of the Eastern Paralyzed Veterans Association, says disabled groups are pleased with the way ADA has worked. "If the regulations are properly used and put into effect, they cover most everything," says Del Colle. "Existing state barrier laws don't provide the total and complete access that they are supposed to." Weaknesses on the local level, he says, were due to "enforcement and whether professionals were aware of what's in the law and followed it. For some obscure reason," Del Colle adds, "when professionals look at state barrier codes, they don't pay as much attention as when it's a federal civil-rights statute."

Todd Harvey, an architect and principal at Beatty Harvey and Associates, in Manhattan, has followed the flow of disability legislation over the years. His firm performs ADA audits, mainly for public agencies and [illegible], and provides its clients with advice [illegible] comply with the regulations—and [illegible] requires any changes [illegible]ns are simple," he [illegible]chents have re- [illegible]ously, a lead [illegible] accessi-

Grab bars, Braille signs—and civil rights

Drafters wrote ADA as civil-rights legislation. Its language is purposefully vague and wide open to interpretation. "The real problem is that it is so broad and the terms are so gray that it's difficult for people to nail down what definitions apply to them," explains Harvey. "What is 'readily achievable,' and what's an 'undue burden'? Attorneys say a lot of this will be defined over the years as it gets litigated." Owners are not seeing the big lawsuits with far-reaching financial burdens that they feared when the legislation was first passed, however.

In the meantime, the reality of the ADA is compliance. How do you know when you comply? "The best defense is to make a good-faith effort, to be a little conservative," admonishes Harvey. "The law is written to *encourage* compliance." The nonspecific language can be turned to advantage, because it encourages clients and professionals to work out individualized solutions, and permits creative answers, especially in existing buildings. "Most of the solutions *are* simple," says Harvey.

Some examples: A low counter at library checkout stations eases the process for wheelchair-bound users (not to say small children). A cash-strapped public system may not be able to afford to rebuild all its counters. Hand out clipboards with forms attached, suggests Harvey. If it's not feasible to lower drinking fountains, install paper-cup dispensers at the appropriate height.

In working with a client, the architect needs to take the "publicness" of the facility into account. If you allow public access to a private facility, then you must make it accessible to all. Though not an official restroom, clerks at a New Jersey toll plaza often permitted the public to use men's and women's rooms located on the second floor. The New Jersey Turnpike Authority recognized that the facility must be made accessible. Harvey found it cheaper to build a separate, fully accessible public restroom rather than refit the existing building.

Letting the blind lead themselves

For most buildings, whether retrofit or new, accessibility is, if no longer an afterthought, simply one of many program considerations. It is, however, the main ingredient in the design of a 170,000-sq-ft Manhattan midtown headquarters for The Lighthouse, Inc., the country's largest private service facility for the visually impaired. Mitchell/Giurgola Associates' (MGA's) New York City office is designing this combination of renovation and new construction.

The project is a virtual laboratory, causing the architects to rethink surfaces, circulation patterns, lighting, color, and signage that must serve an extremely diverse population of impaired and able-bodied people, both professionals and clients. The population's visual abilities vary widely, with correspondingly different needs. People rely on dogs, canes, chairs, or other people to get around—or try on their own.

"Issues of orientation are key," says Jan Keane, partner at MGA. She stresses that the process of wayfinding "is the same whether you can see or not. It's important not to cater in a helpmate way. This is a teaching institution, so you want people to be able to walk out into the world and function."

Keane found it easier to enhance accessibility by minimally modifying standard components rather than custom-designing new ones. One usually overlooked area that is greatly improved by a simple alteration: stairs. "Stairs normally have a solid tread and the same color riser," explains Steve Goldberg of Mitchell/Giurgola. Contrasting color are very useful to those with limited vision. While contrasting-color strips are often used to denote a small change of level, Mitchell/Giurgola made treads and risers contrasting for the entire stair run (page 40). "The nosing of the stair is the same color as the riser and in contrast to the tread," adds Goldberg. Color will also differentiate landings, "so you know you've arrived someplace."

On the main floor, molding at the top of wainscoting is extended outward from the wall to serve as a guiderail. Notches denote wall openings or other transition points. Changes in terrazzo-floor texture delineate pathways and warn of turns and cross corridors.

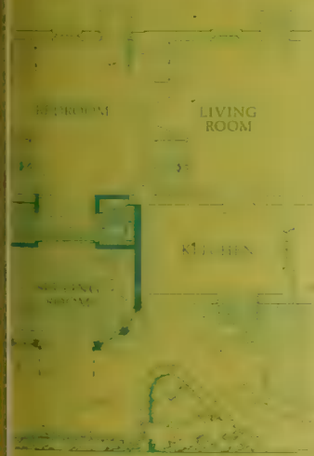
he Americans With Disabilities Act is also being
pped by architects for its design potential for
e vision and hearing impaired.

Gregory Benson



Gregory Benson





inging doors in a tiny Philade
use make an accessible bath
) out of a sitting room (top)

The constant flow of new patrons means that the layout, especially at the main entrance, must be easily and quickly comprehended. Visitors find a reception desk, then move around it to a recessed elevator lobby. "We made sure the elevator lobbies are away from the general flow," says Keane. Wide cabs and doors accommodate the tendency of the totally blind to stand at the front of the elevator. For the partially sighted, large, illuminated triangular hall lanterns announce the elevator; call buttons are beefy oblongs set into bright discs.

The client itself, a committee of Lighthouse staff and clients, included members with a range of impairments. MGA and its team, including design consultant Whitehouse Associates and lighting designer H. M. Brandston and Partners, recognized this, and presented an array of tactile maps indicating everything from floor textures to the presence of warning notches on wainscoting. (At completion, similar maps, including a building section, will be on permanent display at the front desk.) The main floor has the most complex layout. Common elements that recur on upper floors—reception areas, bathrooms, and doorways—have been standardized in form as much as possible, and located in constant positions.

Keane credits the committee experience with helping her to understand that "blind" is not a monolithic disability. The disabled population has abilities as widely varied—and as many ways of living—as the population at large. She says the experience has made her conscious of "trying to make reasonable choices." She saw that clarity of circulation was not merely an esthetic issue. Color and light are important, especially as the aged become a higher percentage of the population. "You start out thinking a lot of rules are guaranteed to make things ugly," she says. "I have a lot of respect for those rules now. It's all in how you use the materials in ways that are still attractive." The results will be clear to see when the building is completed next summer.

Addressing a silent world

Although making darkness visible is no easy task, it still dwells in the architect's world of tangibles. Rendering silence "audible" is a world where solutions are still emerging, and usually still expensive. In ADA terms, this means making public entertainment and information fully accessible to the hearing impaired. Today, strobe lights warn in case of emergency, and infrared transmitters and receivers allow more patrons to enjoy performances in public halls. (While many performers find sign-language translators distracting, many venues provide them on request as a matter of policy.) A trickier issue is voice announcements in public places.

The ADA appears to contain something of a loophole here: Because it requires only that services available to the general public be made universally accessible, performance or convention halls and other public spaces can get around the problem of paging the deaf by eliminating all paging. This was the case at one performing arts center now in design for a northeastern city when the budget had to be cut.

Artec Consultants are acousticians who do much of their work in theaters and other performance spaces. Paul Garrity, a principal consultant, notes that the firm's work has long included the infrared systems for listening to performances that are common in Broadway theaters. "People are starting to desire [more-accessible] public-address systems wherever feasible, but nobody's really thought about how to do that," he says. "It's a problem everyone agrees would be nice to solve, but no one can afford the solutions we've come up with. But once we solve these problems, it helps everybody, not just the disabled."

Light-emitting diode (LED) display systems are in wide use for visual announcements, but are more useful for standardized, simple messages than for customized paging. Garrity points out that, at present, video monitors are more flexible and may be cheaper. Acousticians Lawrence Kirkegaard Consultants of Chicago apparently agreed, and opted for a video-monitor announcement system for the International Terminal at O'Hare Airport. Though the video-messaging system designed by Kirkegaard as consultants to architects Perkins & Will interfaces with a computerized system that

"When professionals look at state barrier codes, they don't pay as much attention as when it's a federal civil-rights statute."—John Del Colle

sends out both canned messages and standard flight-information messages, it still can't carry personal pages. Whether visual and audio paging will be required remains questionable. "The ADA is not very specific on this and I don't know how it's being enforced," says one acoustical consultant.

Accessing emergency exits

Though designers and regulators have paid plenty of attention to accessing buildings, they have not been able as readily to answer the question of emergency egress for the disabled. The February, 1993 bombing of New York City's World Trade Center blew this issue to the fore, with tales of wheelchair-bound workers carried down tens of flights of smoke-filled stairs by colleagues. Carefully graded ramps, wider doorways, and big, bright elevator buttons are worthless without operating elevators.

The ADA sets forth two major intitiatives to ensure emergency evacuation for the disabled. "The glaring hole in all the codes based on the original ANSI standard (117.1) is that they require you to provide the handicapped access into multistory buildings and then tell them not to use the elevators when there's an emergency," explains Tyler Donaldson, an architect with James Stewart Polshek & Partners, who is currently working on renovation of a museum in New York City.

Todd Harvey agrees, but feels that the ADA has addressed the problem. "One of the big improvements has been to mandate added areas for 'rescue assistance,' " says Harvey. These are offered as an alternative when accessible routes of entrance can't double as emergency egress. Areas for rescue assistance must accommodate two wheelchairs per floor, must have fire-rated enclosures, must be adjacent to fire stairs or other exitways, and be equipped with emergency lighting and communications systems. "It couldn't mean rebuilding," says Harvey. "It will allow some hallway space, but not an [illegible]"

[illegible] steps

[illegible] historic pros- [illegible] in the

name of accessibility. The act is flexible, even lenient, says Harvey. "You do not have to alter a historic building if to do so would change its character or significance," he cautions. "If you can't widen a door or change a room without doing that, that fact overrules the requirements." This is not to say that the designer should not make every effort. As a consultant to two historic-house museums in Oyster Bay on New York's Long Island, Harvey recommended that a temporary wooden ramp be stored in a closet and used as needed. Assistance provided by the caretaker counteracts the fact that the ramp's slope is steeper than would be permitted for the unassisted. Institutions with strict fund limits must look closely at the tradeoffs. If changes in the building are possible (even if costly), they can avoid an open-ended commitment to maintaining staff.

Even apparently poor candidates for upgrading can often be made rewardingly accessible. A wheelchair-bound client asked Philadelphia architect James Oleg Kruhly to create a fully accessible ground floor within a pair of narrow 18th-century three-story row houses (known as "trinities"—so named because they contain one room on each of three floors). The pair were joined by a small rear garden, with the client's able-bodied companion living in the other trinity. Not only was access between the two houses to be provided only through the garden, the owner asked Kruhly to subordinate the handicapped features of the renovation to the historic nature of the property. Leaving the two upper floors for storage and live-in help, Kruhly placed the bedroom and living room along the front of the house. He built a small sitting room with a double-height wood-framed glass wall that extends slightly into the garden and has a view toward the adjacent property. It seemed impossible to meet the space requirements of a wheelchair-accessible bathroom without destroying the scale and character of the residence. But Kruhly found that he could separate the bath into a toilet-and-sink component opposite a shower room. Normally the space between forms a wide passage between bedroom and sitting room. The shower and toilet compartment doors can be rotated to screen the sitting room, and then the space between the compartments be-





At new headquarters for The Lighthouse, Inc. in New York City, stair treads and risers are done in contrasting colors (top). Notches at the end of a guiderail (above) cue the blind to direction changes, level changes, and cross halls.

omes the bathroom's wheelchair turning adius (page 39).

Cruhly is proud of the result, which won an ward from the National Trust for Historic reservation, but he also gives credit to the lient. "He wanted to keep the historic char- cter, and he was prepared to sacrifice so hat it didn't look clumsy."

tairs have been a problem at the Cooper- Iewitt Museum of the Smithsonian nstitution, located in the turn-of-the-century ndrew Carnegie Mansion in New York ity. Converted to a museum in the 1970s, ne main entrance of this National Historic andmark is formidably inaccessible, with a ight of steps outside followed by a four- oot stair run within the lobby. Wheelchair ntry is currently available through the ser- ice drive, and requires assistance. In ddition, the museum needed to improve ac- ess to two townhouses on its southeastern ide (now used for offices and storage) and nk them to the main museum.

ames Stewart Polshek & Partners, archi- ects of the renovation, earlier faced similar ifficulties reconciling floor levels in a res- oration of Carnegie Hall. Thus, says Tyler onaldson, "We sought a solution respectful f both building and people." The architects re converting a four-foot planting strip in- ide the mansion's iron fence into a ramped athway to the exterior entrance level. Once nside, a small elevator will be available. Basically the procession into the museum is ne same for wheelchair users and for those who use steps," says Donaldson.

The architects also had to devise access to ne museum's large garden (down a flight of teps today) and to the townhouses. Because ne museum is set in a difficult-to-bridge re- essed moat, the architects proposed a cheme that required minimal alterations to ne historic mansion. An upper level connec- on through the nearest, L-shaped owhouse forges a new public sequence to ne garden. Again, the design is inclusive, ot just for the disabled. "It's the intention f all of our work to eliminate as much as ossible any special or obviously different ccessible routes," explains Donaldson. He oints out the secondary benefit to the mu- seum of having larger, smoother passages for moving collections. Along with communication devices (in places like bathrooms) to comply with the ADA's rescue-assistance requirements, the firm is designing visual and aural alarms systems, and providing corridor lighting brighter than "typical museum levels."

Building on ADA

Donaldson's accessibility solutions had to comply not only with the city's formidable landmark guidelines, but also the Smithsonian's own accessibility codes. He worked with Janice Majewski, the institution's Coordinator of Accessibility Programs, an office that provides technical assistance throughout the organization, reviewing construction documents with its internal design and construction office. Majewski is familiar, not only with the ADA, but with earlier guidelines for federal buildings such as the Architectural Barriers Act of 1968 and the Rehabilitation Act of 1973.

"These are minimum standards," says Majewski, who has been at the Smithsonian for 15 years, the last two creating and heading this department. "And if we find it appropriate, we go beyond them. Many people can't negotiate [barriers that remain even with] minimum standards, so we are working to develop a Smithsonian standard of uniform accessibility."

That the ADA doesn't go far enough in some instances is not its major difficulty, Majewski insists. "The challenge is not from the ADA but from the people I work with, who are trying to understand what accessibility means. People don't truly understand the audience for whom these regulations were designed, and so there may be resistance." Majewski is optimistic: "I've seen more turnaround in the past two years than in the prior 13, and the Americans with Disabilities Act has made the difference." ■

ADA Resources

- "ADA Handbook," published by the Equal Employment Opportunity Commission and the Department of Justice: 800/669-EEOC; the TDD number is 800/800-3302.
- The AIA offers "ADA: A Resource Guide," a $30 looseleaf compendium of regulations and interpretive information issued by federal agencies.
- The Building Owners and Managers Association publishes the "Americans With Disabilities Act Compliance Guidebook," available from BOMA International, 1201 New York Avenue N. W., Washington, D. C. 20005; 202/408-2662.
- "The Americans with Disabilities Act Compliance Workbook," by Evan Terry Associates in association with Barrier-Free Environments Inc. (John Wiley & Sons, 1992,$150) includes analysis of the ADA, a systematic method for surveying facilities, and suggests means to interpret the regulations. 2129 Montgomery Highway, Birmingham, Ala. 35209.
- An extensive list of publications is available from Barrier Free Environments, P. O. Box 30634, Raleigh, N. C. 27622; 919/782-7823.
- The Eastern Paralyzed Veterans Association also publishes a number of free compliance guidebooks. Write the EPVA at 75-20 Astoria Boulevard, Jackson Heights, New York 11370-1177, or call 800/444-0120.
- Vocational Studies Center at the University of Wisconsin/Madison offers videos and handbooks on working with the disabled. Write the VSC, University of Wisconsin/Madison, Dept. AF, 1025 W. Johnson Street, Madison, Wis. 53706, 608/263-2929.
- For specific questions, contact the U. S. Department of Justice, Civil Rights Division, Office on the Americans With Disabilities Act, P.O. Box 66118, Washington, D. C. 20035-6118, 202/514-0301; TDD number: 202/514-0383. ■

Seen at CSI



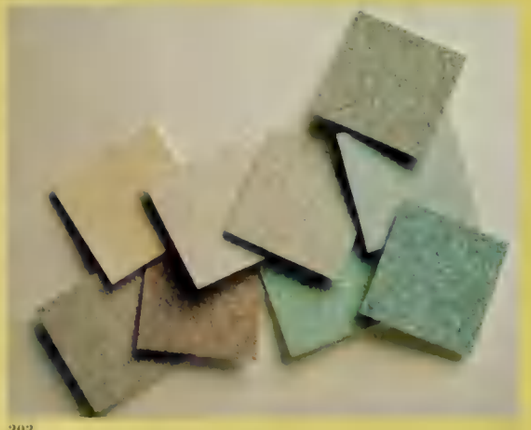
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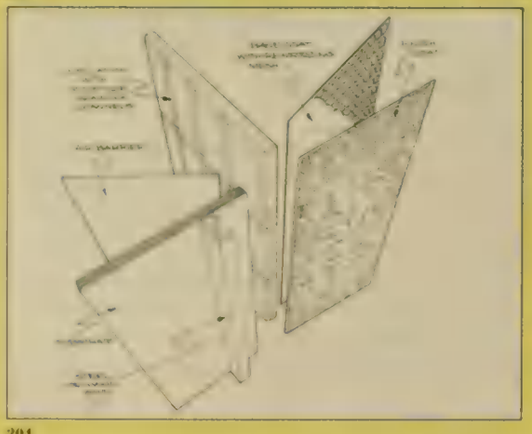
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Computer-based specifications, natural disasters (and buildings that survive them), the ecological advantages of minimizing construction waste: all were dealt with in detail at the 37th Annual Convention and Exhibit of the Construction Specifications Institute. The product introductions selected for RECORD*'s spotlight reflect these industry-wide concerns, as well as the classic architectural appeal of color and subtle shape. J. F. B.*

204. Five-panel wood door

A Mission-influenced style of Douglas fir over a [illegible] laminated core, this five-panel [illegible] used in exterior-entrance [illegible] as indoors. Door leaves [illegible], and up to 8-ft [illegible] Western hemlock. [illegible] Way, Wash.

201. Fire-resistant roof decking

More of a time-saving assembly than a new technology, FlameBreak is a structural panel made of APA-rated plywood bonded to a 1/4-in.-thick layer of Dens-Glass, a proprietary fiberglass-faced gypsum panel. UL Fire classified as composite building units for roof-deck construction, panels achieve a UL 30-minute flamespread rating with no chemical treatment. Georgia-Pacific Corp., Atlanta.

202. Seismic-capable structural tile

A new design for horizontally cored ceramic-surfaced masonry units adds two large vertical holes, allowing placement of grout or steel bars to meet the security standards of the Federal Bureau of Prisons. The vertical-reinforcement capability is said to also resist earthquake damage in seismic areas. Stark Ceramics, Inc., Canton, Ohio.

203. High-impact wallcovering

Made of a non-porous vinyl/acrylic material said to be highly resistant to common stains, integrally colored wall treatment is an almos tear-proof .022-in. thick. Fire-rated Class I, the wallcovering comes in nine stone pattern and 64 complementary solid colors. A fiber backing aids hanging with a water-based primer/adhesive. The C/S Group, Muncy, Pa

204. Pressure-equalized EIFS wall

An installation system, developed to pre-emp possible defects in workmanship, applies rainscreen principles to exterior insulation and finish systems. Insulation board is supplied with drainage channels, wall sections are compartmentalized and vented, and a secondary weather barrier prevents deterioration of the substrate over the long term. Dryvit Systems, West Warwick, R. I.

Hot and humid Houston hosted '93's major architectural-materials trade show.



206



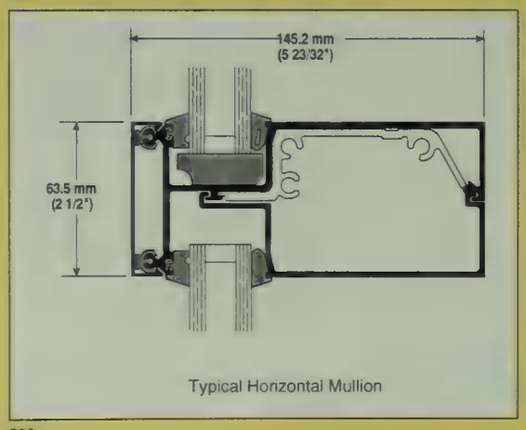
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205. Curved sheet-metal trim
A proprietary curving process, said to be more economical than stretch forming, can now be applied to a wide range of prefinished sheet-metal trim and flashings, ridge caps, and 90-degree mitered corners. Fabricated to the specifier's radii and angles, simple or complex curves can be produced on 29- to 18-gauge panels in a range of substrates. Curveline, Inc. Ontario, Calif.

206. Fireproof coating for steel
C/D Firefilm, an intumescent coating about the thickness of a credit card, meets code requirements for 1- and 2-hour fire protection of structural steel, replacing bulkier methods. It permits use of architecturally exposed steel in locations such as a top-floor pedestrian bridge at the Hospital for Sick Children, Toronto (Zeidler Roberts Partners Architects), where Firefilm is the white coating on the trusses. Developed in Canada, the system consists of an adhesion-promoting primer, the spray-applied, water-soluble Firefilm, and a decorative paint topcoat. FIPRO Corp. of America, San Diego, Calif.

207. Window design on Windows
Marvin Design System software works with Microsoft Windows as well as AutoCAD 12.0, supplying documentation in the form most usable to each member of the design team. It allows what-if planning of various window assemblies; an automatic Rulebase indicates when a design exceeds structural limitations. There is hotline support. Needs an IBM-compatible 386/486, 4Mb RAM, 5Mb free disk space; available without charge to holders of Marvin's current Architectural Detail Manual. Marvin Windows, Warroad, Minn.

208. Easy-in curtain wall
Described as thermally improved, the ICW-250 lowrise system is designed with square cuts and snap-on shear blocks that facilitate inside glazing. Weep valves are integral, and there are no exposed fasteners. Face dimension (detail) is a narrow 2 1/2 in.; a split horizontal accommodates large live and seismic loads. Vistawall Architectural Products, Terrell, Texas.

209. Stainless-steel curves
Subtly radiused edges, corners, and flanges create a new esthetic for all of this maker's recessed and surface-mounted accessories, from towel dispenser/receptacles (above) to tissue holders. Heavy-gauge steel components are made with imperceptible welds. Bobrick Washroom Equipment, Inc., North Hollywood, Calif. ■

Windows Software Dominates at A/E/C Systems

Fast Macintoshes, color output devices, and raster scanners draw lots of attention.

By Steven S. Ross

The big news at this year's A/E/C Systems show revolved around Microsoft's new operating system, Windows NT. Most major CAD vendors are jumping on the NT bandwagon, promising NT versions of their software within the next 12 months or so.

The charge is being led by Intergraph, which has readied a new version of MicroStation, 5.0, for NT—and has adapted NT for its own Clipper 400 workstations. Intergraph demonstrated NT versions of MicroStation 5.0 and its MasterWorks series of architectural and civil-engineering applications at the show.

It's not hard to see why CAD vendors are excited. Windows NT (the NT stands for "New Technology") is a true 32-bit operating system. It will look like Windows 3.1, but unlike 3.1, which is really a sophisticated shell for DOS, NT stands alone. Software written especially for NT will have major speed advantages over most software written for MS-DOS. That's because NT processes data 32 bits at a time. DOS and Windows 3.1 process data only 16 bits at a time. (A bit is a zero or a one; a 16-bit number is approximately equal to a value with 10 decimal places, or two text characters).

NT is network-capable, out of the box.

There's also the promise of "inter-operability." NT's first release, due as RECORD went to press, will work not only with Intel 80386 DX and newer CPUs, but also with workstations based on the MIPS R4000 and R4400, Digital Equipment Corporation's new Alpha AXP, and the Intergraph C400.

Microsoft has been saying that this means a software application written for NT should be able to run on any of the listed machines, with more machines to come. But don't expect that level of full compatibility in the CAD [illegible]. For one thing, the [illegible] have different [illegible] different "[illegible]" particularly for graphics. For [illegible] nervous about [illegible] across different machines.

Indeed, NT [illegible] for compressed data disks will be non-existent and for removable disks (SyQuest, Bernoulli) will be limited. This reduces functionality that many architects need today. In addition, NT requires a big PC—16 MB of random-access memory and a 486 CPU running 33 MHz is recommended; operating-system files take 70 MB of disk space, all by themselves. The equipment costs came down considerably in the past six months (a solid NT-capable machine should cost under $3,000, and upgrading from the 8 MB that is *de rigueur* now, to 16 MB, should cost only $300), catching CAD vendors somewhat by surprise, however. They thought they would have until the end of 1994 to catch up with architects wanting to adapt to NT. But many offices can afford the upgrade now.

Intergraph, which seems furthest advanced into the process, insisted that it would not be offering its NT software on the DEC Alpha anytime soon. Readying the code for it might only take a few days, but checking for minor incompatibilities and preparing extra documentation would be a painstaking and expensive process.

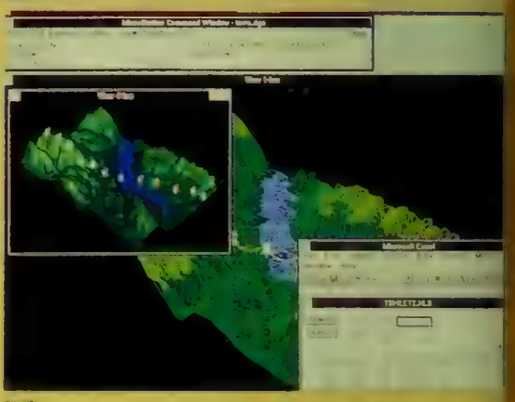
Intergraph's task is complicated by the fact that MicroStation 5.0 can be switched between the standard Windows interface and the standard "UNIX-Motif"-like interface. MicroStation 5.0 will also be available in DOS and Windows 3.1 versions. And 5.0 has many new features, including rendering and broad file compatibility with AutoCAD and other packages. *Circle* **300**

Other CAD vendors have evolved similar schemes to get around the problems the Windows menu system poses for multi-command CAD software—floating on-screen palettes, toolbars, and so forth. It is ironic, therefore, that architects are among the few classes of computer users that crave the power of NT now, even though the interface is not quite up to their needs.

And one major vendor of UNIX CAD workstations, Sun Microsystems, has offered NT only lukewarm public support, saying it will eventually adapt NT for Sun computers but not providing any timetable. Sun did announce work with Fujitsu on the next generation of SPARC microprocessors.



300a



300b

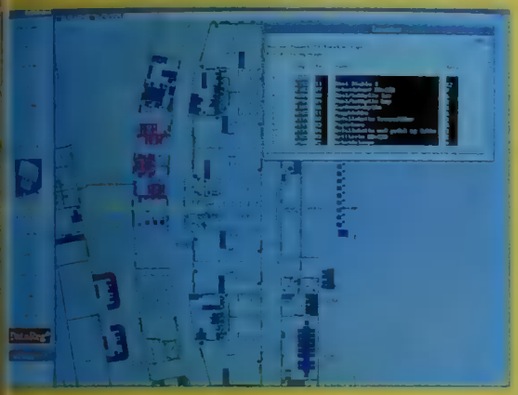
Furthermore, some UNIX vendors have found NT's competitive threat among the new reasons to cooperate. Attendees at this show had to look closely, but the evidence was there. IBM, for instance, for the first time was demonstrating its Architecture & Engineering Series (A&ES) on a Hewlett-Packard HP Apollo 9000 Series 715/50 workstation. The normal platform is an IBM RISC System/6000. Both are UNIX computers. The demo was running at both the IBM and the HP booths.
Circle **301**

ComputerVision announced that its CVaec for DIMENSION III plant-design software which had been available on HP Apollo 9000 Series 400 workstations running under the Apollo DOMAIN operating system, was now available as a UNIX application for Series 700 workstations as well.
Circle **302**

Also running on the Series 700 are AutoCAD Release 12, the ASG Architectural add-on, and KETIV Technologies and RenderStar's Advanced Rendering Extension (ARE-24).
Circle **303**

300a. Full-blown rendering in Intergraph MicroStation 5.0.
300b. Creating spreadsheet macro in Intergraph MicroStation 5.0.
301. Floor plan from IBM's A&ES showing highlighted area and furniture inventory.
303. RenderStar Advanced Rendering Extension image
304a. Softdesk Architectural
304b. Softdesk Survey/Civil.
308. Office/residential building, Budapest. Graphisoft ArchiCAD.

For more information, circle item numbers on Reader Service Card.



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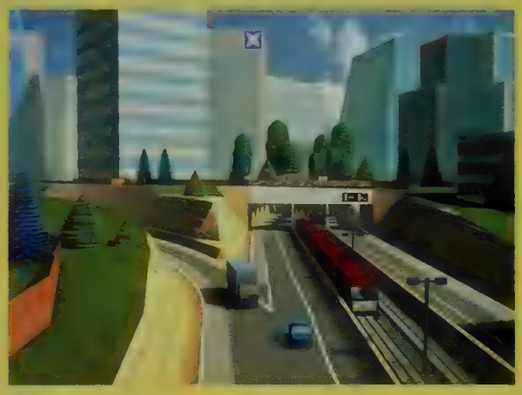
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304b

Indeed, KETIV and Softdesk are emerging as the major suppliers of AutoCAD add-ons, even as more firms enter the growing market. *Circle* **304**

ASG and Softdesk completed their merger plans—essentially a merger of ASG into Softdesk. The two firms have been the leading suppliers of AutoCAD add-on software, with more than 100,000 systems in use. Last year, they had announced a common file format for AutoCAD details. At this year's conference, Softdesk unveiled a wide range of new products, including AutoCAD add-ons for Windows. Softdesk will also be distributing Sirlin's SirlinVIEW/Plus 2.5, a special version of this file viewer designed to work directly with Softdesk project files. *Circle* **305**

NT is bringing many UNIX developers into the world of relatively inexpensive personal computers, too. For instance, Timeline Inc., a DEC VAX developer of financial-management and accounting software, showed NT versions of general-ledger and desktop-reporting packages. *Circle* **306**

EDS unveiled MicroGDS CAD software for the DEC Alpha and NT at the show. GDS has been particularly strong in GIS software. *Circle* **307**

CAD vendors that were already moving toward Windows anyway say NT is a logical step as well. Graphisoft introduced the Windows 3.1 version of its ArchiCAD modeling and CAD package, and said it would be released for NT as well; until recently, this software ran only on large Macintoshes. *Circle* **308**

Autodesk privately showed a "developer's version" of AutoCAD Release 12 for Windows, compiled to run under Windows NT. It will not be sold to end-users, however. In a two-processor Pentium system, two copies ran simultaneously and exchanged data—each using one Pentium processor. The inside betting is that Release 13, the first end-user version due to run under NT, will be out by mid-1994—and maybe earlier in the spring.

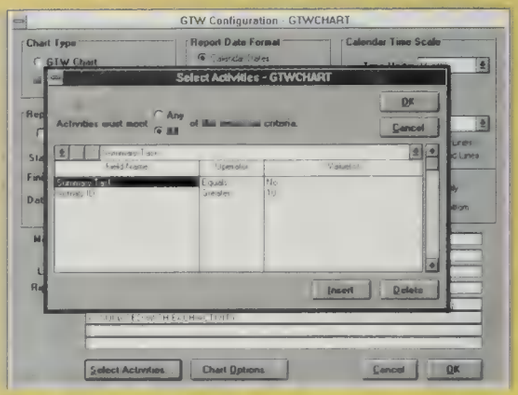
The extra power of NT will be used, in part, for what Autodesk is calling the "Anaheim" add-ons—vastly improved links to databases, including geographical information system (GIS) databases. The file structures will not be proprietary, Autodesk says. This means that other vendors can design their own file structures and file-translation programs to translate not only the graphical details of AutoCAD files, but also the underlying data.

Autodesk also announced that it has licensed the fast HOOPS Graphics System for 3-D graphics from Ithaca Software for future releases of AutoCAD. HOOPS should make AutoCAD faster, and files from AutoCAD add-on applications more portable. Also, Ithaca already has released an NT version. *Circle* **309**

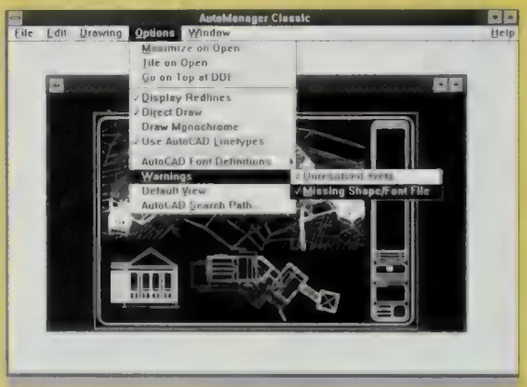
Cadkey announced that its next generation of CAD software would initially ship on NT as well. It will use the ObjectStore object database. The company also announced an advanced NURBS-based modeling package as an add-on to Cadkey 6.0, and an upgrade to DataCAD, dubbed 5.0. *Circle* **310**

Isicad is also promising an NT version of its Cadvance CAD software. But the next upgrade, 6.0, due in September, will still be a standard Windows 3.1 product. It improves

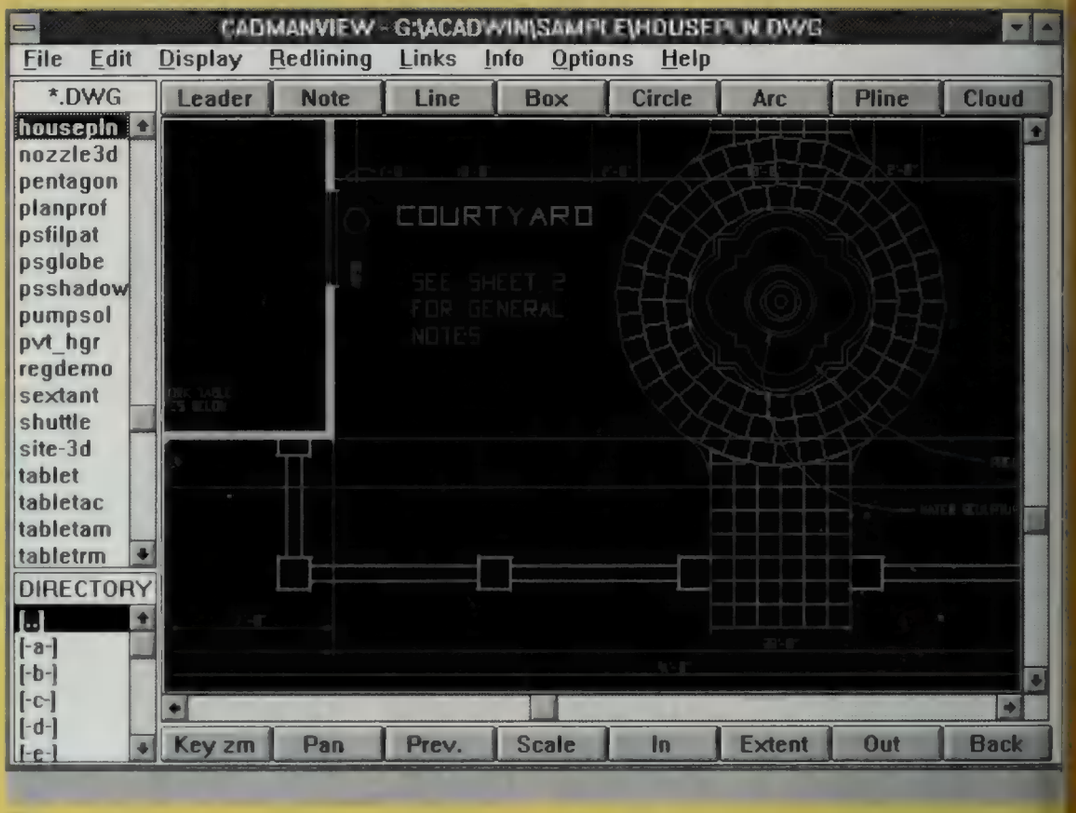
313. GTW's project management system is modular; it connects to many Windows files.
319. Cyco Automanager Classic is particularly good at keeping track of AutoCAD files.
321. CadmanView file viewer can search for any CAD files on your system.



313



319



321

on the firm's first Windows version, 5.0, by adding TrueType font support, better text editing, better OLE and ODBC (Open Database Connectivity) support, and somewhat faster operation. *Circle* **311**

Isicad was also showing AE Tools from A/E Technologies, a "smart symbol" library for automating the creation of architectural construction documents inside Cadvance 5.0. *Circle* **312**

Like Windows 3.1 and Apple System 7.1, NT allows vendors to stitch together mature applications, to create special systems for architects. GTW Corporation, a project-management outfit, demonstrated a system that combined Microsoft Project for Windows, Excel, Word for Windows, and the Microsoft Access database with the GTW "Graphics That Work" package. *Circle* **313**

Autodesk's Retail Products division released [illegible], with full 2-D DWG and DXF [illegible]. *Circle* **314**

[illegible] created to [illegible] AutoCAD in [illegible] version 3 at the show. The new release has many new 3-D features, and the ability to import and export 3-D DXF and export RIB files for RenderMan rendering.

Graphsoft is taking full advantage of Claris's decision not to upgrade Claris CAD; Claris users can buy MiniCAD+ for $495; the new release comes with a Claris CAD to MiniCAD+ converter. *Circle* **315**

Innovative Data Design introduced a major upgrade, version 3.0, of MacDraft. It includes associative dimensioning, many new drawing tools, and some new presentation tools such as being able to create a slide show out of separate layers. IDD is discontinuing its Dreams CAD, however; most features are now in MacDraft. *Circle* **316**

Auto.des.sys showed form-Z 2.2, an improved version of its excellent Macintosh modeling software. This package has excelled at producing intricate models of structures with fine detail and complex curves on any axis. *Circle* **317**

File Management

New approaches are emerging to keep track of CAD files on networks—even when the files themselves reference other files. At the high end, Micro Engineering Solutions is bundling Viewbase Tools 4.0 from Image Systems with its own IDoCS engineering document and revision-control software. The combo replaces the ViewBase system based on FoxPro; it handles viewing, multi-layer redlining, revision control, and "on-demand" document distribution. *Circle* **318**

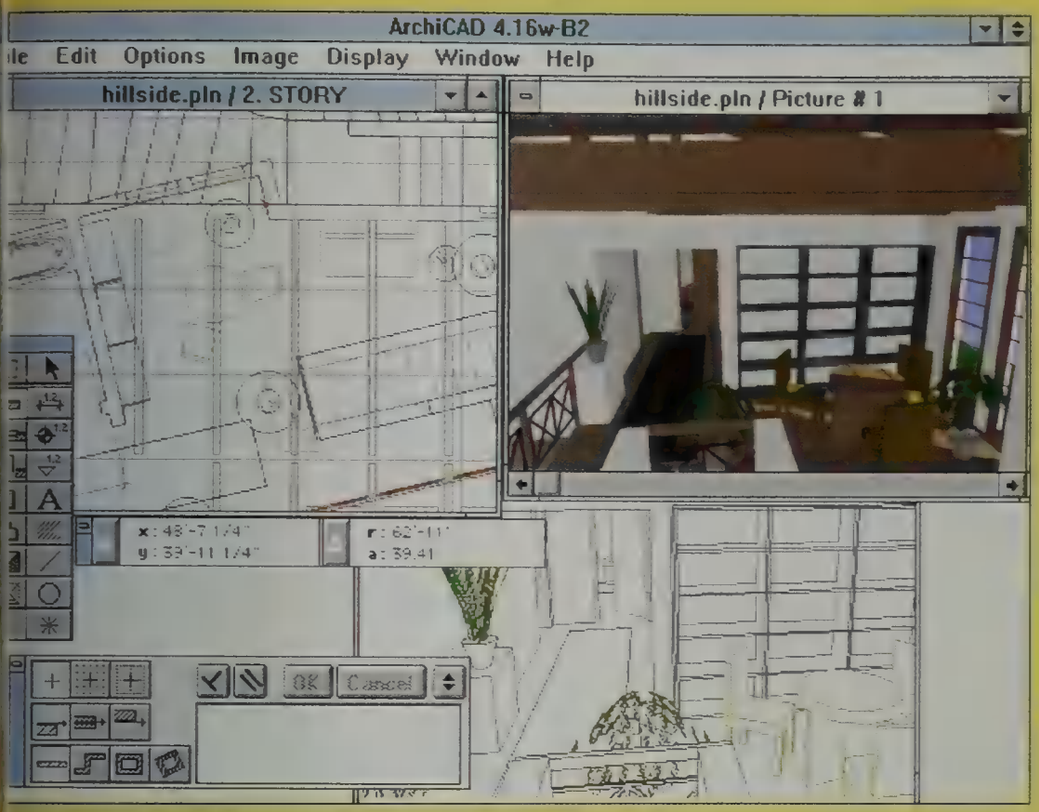
At the low end, Cyco International announced AutoManager Classic for Windows. For $25, it allows zooming and panning, view of individual layers, blocks, or views, support of Windows multiple-document interface, and the ability to insert and Xref blocks. The firm's AutoManager WorkFlow is now in version 3.1 as well—with direct links to MicroStation and Generic CADD and the ability to read 15 different file formats. *Circle* **319**

Covering high and low, SoftSource offered a "Lite" version of its AutoCAD Windows drawing viewer for $10. It even tracks Xref and paperspace drawings from Release 12.

5. Graphsoft MiniCAD+.
7. This is a model generated with m-Z 2.2 from Auto.des.sys.

330. Running JSpace facilities-management, Jacobus Technology.

For more information, circle item numbers on Reader Service Card.





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e full-blown Drawing Librarian is $99; it n be customized for many different sys-ns and needs. *Circle* **320**

ratek showed its Cadmanview file viewer well. *Circle* **321**

nmetry Systems, Inc., announced toVue 12.2, which allows viewing a wide riety of CAD, raster, and text files. ere's a particularly powerful "compare" ture to help track revisions. There are IX, DOS, and Windows versions. *rcle* **322**

DWorks released its DecisionBase view-y product for Drawbase files. A Windows sion of the parent product, Drawbase, is e this summer and an NT version is mised. This CAD package has been par-larly popular for those doing facilities-nagement work. *Circle* **323**

the Macintosh side, Graphic Management up announced a major upgrade to its Ap-ure "visual information management" tware, version 4.0, and also announced sion for Windows. *Circle* **324**

Project Planning and Facilities Management

BEEDEE announced the first stand-alone Macintosh package for combined practice and project financial management. It is aimed directly at the architectural market, not for general accounting. *Circle* **325**

Archibus showed its FM version 6.1 facilities-management package (for AutoCAD Release 12 for Windows). It allows viewing of a drawing and its database in separate windows on the same screen. *Circle* **326**

Accugraph added new modules to its comprehensive facilities-management software as well. There's better asset management, with especially good graphics links. *Circle* **327**

Primavera Systems previewed a Windows version of Primavera Project Planner. It includes all the functionality of the DOS version, along with the hourly scheduling features of its Finest Hour package. The final release should be out by summer's end. *Circle* **328**

Harper and Shuman announced an addition



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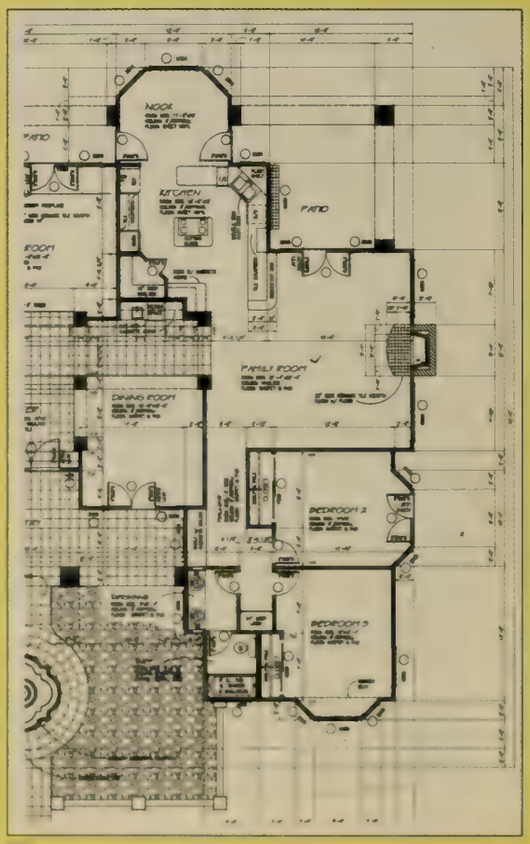
to its facilities-management/financial-management software—a package based on the popular Oracle database. It also announced its first DEC Alpha installation. *Circle* **329**

Jacobus Technology showed its JSpace software for merging project databases, and JT/ID interference-detection software (based on JSpace). There are already versions for A&ES, MicroStation, and AutoCAD; it works with DXF or IGES files. *Circle* **330**

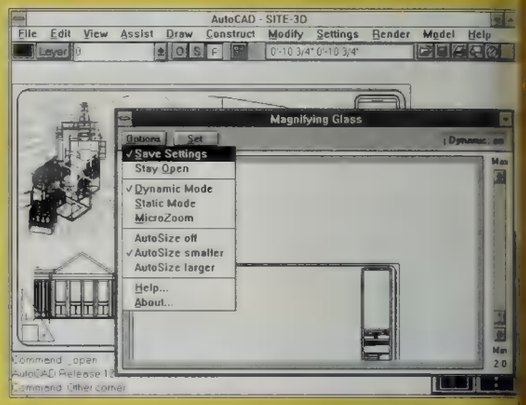
331. Rendering of the Chrysler Building on Encad's Novajet II color ink-jet printer/plotter.
332. Plot done on the Hewlett-Packard DesignJet 650C.
335. CalComp dual-mode E-size pen plotter.
340a, 340b. Vermont MicroSystems Auto-Mate Pro for AutoCAD Windows release 12 allows quick view manipulation with its own display list.
344. SweetSource "snapshot" shows three



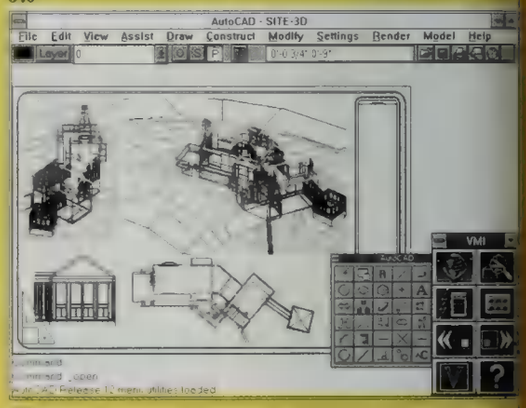
331



332



340



340a

Printers and Plotters

Large-format color inkjet printers improved enormously while prices came down considerably. Offerings from Encad and Hewlett-Packard handled even densely inked output with no noticeable color banding. And both firms offered a good range of network interfaces and add-on equipment such as PostScript interpreters.

Encad introduced its NOVAJET II E-size color ink jet printer/plotter. The unit is compatible with any software that handles HP-GL/2. At $7,995 list, it is $3,000 cheaper than last year's model, but offers more uniform color without noticeable "banding," and easier plot setups from memory or the front [illegible] *Circle* **331**

[illegible] a direct competitor to HP DesignJet [illegible] 195 for D-[illegible] you trade [illegible] ven-

its line of electrostatic plotters. At about $90,000, it is aimed at firms doing roughly 50,000 E-size plots a year. *Circle* **333**

Shacoh USA showed an "all in one" E-size electrostatic copier, the model KIP 3800. With options it can be used as a plotter, fax machine, or scanner. The "full house" price with all options is $59,000. *Circle* **334**

CalComp introduced four large-format ScanPlus II scanners. With optional interfaces, they work on a wide range of workstations and personal computers. CalComp also announced across-the-board price cuts of up to $3,000 on its DrawingMaster family of direct-imaging plotters. E-size units are now under $20,000. The firm released several low-priced pen-plotters over the past year as well, and showed them at A/E/C Systems for the first time. *Circle* **335**

Xerox Engineering Systems introduced four new electrostatic plotters in its 8770 series, featuring a new silicon-based imaging technology. The lowest-price unit, for 24-inch-wide media, lists for less than $26,000 with 400 dpi resolution. *Circle* **336**

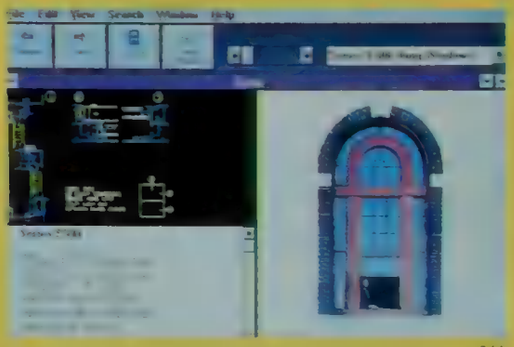
Video Drivers

Artist Graphics announced shipping of its Xj1000i family of graphics controllers, for 1600 by 1200 resolution on relatively inexpensive monitors. Software is included for real-time wireframe rotation in AutoCAD, and quick rendering. *Circle* **337**

Matrox announced a super-fast 64-bit video-accelerator card that uses the Intel PCI local bus; deliveries are not expected until the end of 1993. It also showed its DynaView software for AutoCAD Release 11 and 12 DOS versions—with bird's eye view and the ability to switch screen resolutions without rebooting. *Circle* **338**

Panacea released PanaIcon for AutoCAD 12 (DOS and Windows). It takes AutoCAD DWG files and converts them to menu icons. You display and access them through the AutoCAD Dialog Box Interface; icons can be resized to look good at any screen resolution, and the menus can be nested. One obvious use is to display a duplicate of the on-digitizer menu (a DWG file) on screen, and then modify it as needed. *Circle* **339**

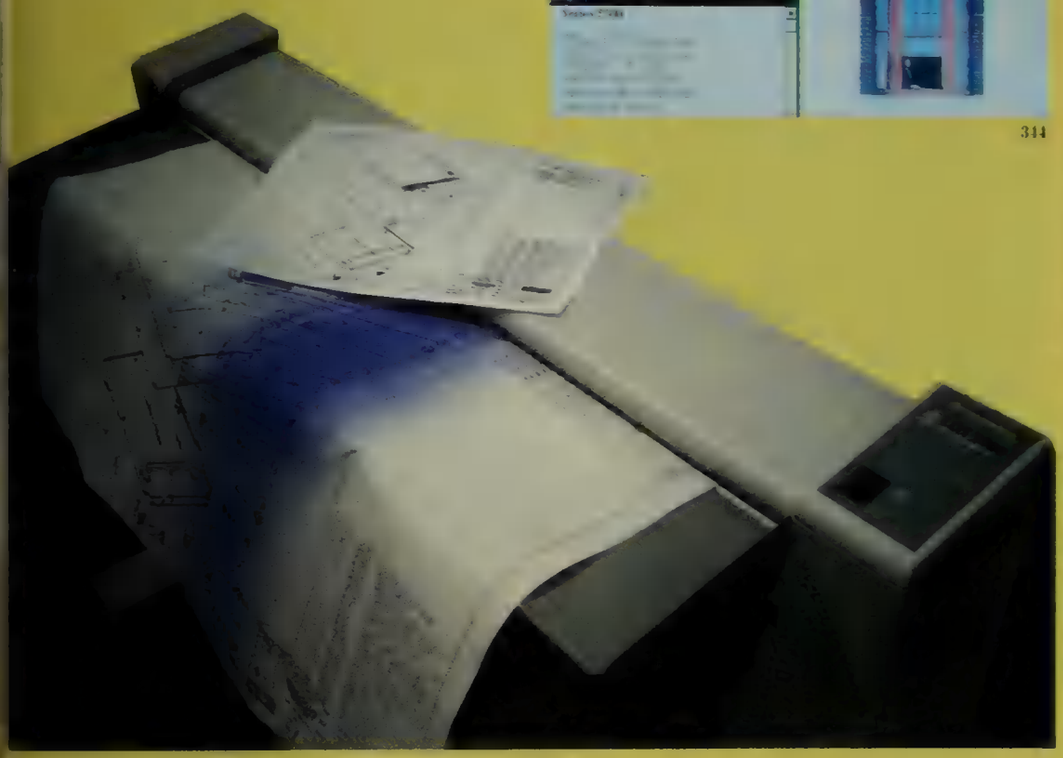
iews of product—photo, CAD drawing, nd text with technical data. 48. Summagraphics' SCAN-CAD 128P dd-on cleans old blueprints.



344



335



18

'ermont Microsystems showed its .utoMate/Pro AutoCAD accelerator and n-screen menu software. The firm is con-entrating more and more on software and ess on hardware. *Circle* **340**

'ibrant Graphics announced support of video oards based on the Weitek P9000 (Orchid '9000, Diamond Viper, Cardinal P9000) and ne Western Digital W32 (Hercules Dynamite, 'ompaq ProLinea), and expanded support for raphics cards based on the S3 (9 GXE, Dia-ond Stealth Pro, etc.). Vibrant has ccelerator software for AutoCAD, CADKey, nd Intergraph MicroStation. *Circle* **341**

'ideo Seven introduced a new display list river for AutoCAD 12 running on Video Sev-n's graphic accelerator cards. It includes ome nice ease-of-use features such as n-line help, and particularly speeds endering. *Circle* **342**

'or more information, circle tem numbers on Reader Servic[illegible]

Productivity Aids

An inexpensive (as low as $139) hood that fits over the monitor and allows 3-D viewing was introduced by Simsalabim Systems. You have to convert files to 3-D DXF first, but there are several vendors interested in improving the interface software. *Circle* **343**

Sweet's Electronic Publishing showed the first "commercial" CD-ROM SweetSource disk. On it, dozens of companies have provided data that can be "pasted" into project files. Sweet's also showed its CadPLUS AE Design System, for automating facility-management chores. The report-writing feature is particularly flexible. *Circle* **344**

Andersen Commercial Group released a DXF version of its Electronic Detail File of window and patio-door products; previously, it had only been available in AutoCAD DWG format. *Circle* **345**

Decision Graphics showed the Windows version of its DGNLink software for moving files both ways between AutoCAD Release 12 and MicroStation. *Circle* **346**

Insight Development is shipping PrintAPlot 3.0.3; it allows you to use a wide variety of printers in place of plotters. The software converts HP-GL to PostScript and most laser and dot-matrix formats. Drawings up to E-size can be printed by tiling smaller sheets. *Circle* **347**

Summagraphics introduced a new pen-plotter line and showed large-format, backlit digitizer tablets. But perhaps the most amazing item was its SCAN-CAD 128P scanner add-on for the new HiPlot Series 7000 plotters; in tests at the booth, the scanner and software easily cleaned old, badly exposed blueprints to create files for further processing, or for use as a base for CAD. *Circle* **348**

Axama introduced its DigiPlot 1000, a digitizer connected to a plotter for real-time output of the file you are tracing. The effect is something like a computerized "etch-a-sketch" machine, but the partial plots can be saved. It is a clever way to keep everything in one place, reducing the need to generate lots of paper ahead of time. *Circle* **349**

Advanced Technology Center (ATC) released CADReview, a Windows 3.1 entry-level document viewer/markup package for AutoCAD, Generic CADD, DXF, SLD, and HPGL files. The firm upgraded its ForWare series as well. The ForWare series includes raster-document editing and viewing tools, and conversions. *Circle* **350**

Image Systems showed a Windows version of its CAD Overlay ESP, for making revisions to scanned drawings inside AutoCAD. It is due to ship late this summer. *Circle* **351**

Digest Software started marketing its raster scanning CleanScan software to end users. You can buy an evaluation copy for $15; it will save a limited number of scanned images. You can then "buy" the right to

Continued on page 137

Berlin's IBA: A Critical Assessment

By Peter Blake

People have been building "ideal cities" for centuries—to memorialize popes and princes and other figures of authority or devotion. But in our century, ideal cities have usually been built to prove more prosaic points—political, social, sometimes esthetic. There have been new towns in Britain, the U. S. and elsewhere; there have been new capital cities like Brasilia and Chandigarh; and there have been experimental towns that explore new urban or architectural alternatives.

The three most interesting experiments in this century may have been conducted in Germany. There was the *Weissenhof Siedlung* of 1927 in Stuttgart, which was planned by Mies van der Rohe and contained an extraordinary collection of avant-garde structures by architects like Le Corbusier and Pierre Jeanneret, Walter Gropius, Hans Scharoun, Peter Behrens, J. J. P. Oud, and Mies himself. There was the large *Interbau* complex of 1957 in West Berlin—a realization in many ways of Le Corbusier's Radiant City concepts of the early 1920s, and containing impressive buildings by Aalto, Markelius, Niemeyer, Gropius, and many others. And then there was the most ambitious effort of all—the IBA (*Internationale Bau Ausstellung*, or International Building Exposition), which got under way in the late 1970s in West Berlin and is now finishing up.



Hertzberger's LiMa apartments overlook a central courtyard.

In many ways, IBA is the most remarkable of the ideal cities built in this century. This is not because its components are exceptional works of architecture (though many are). It is because IBA is not a prototypical city at all, but a radically new urban approach.

Like many European cities, Berlin was a disaster area after World War II. Although much had been reconstructed in the 30 years since the war, by 1975 significant holes in its urban fabric remained: empty lots in the middle of city blocks and empty blocks in the middle of surviving neighborhoods.

"Plan Like" represented an entirely [illegible] the commissars [illegible] by wiping out what-

[illegible] Plan Like [illegible] did

ever was left standing and starting with a *tabula rasa* on which to erect monumental boulevards honoring the new ruling elite. But in West Berlin, the complex ideals of participatory democracy demanded a different set of strategies: not a *tabula rasa*, but a kind of roundtable dialogue at which design solutions emerged from the interaction of all those most directly involved.

Two heads for the program

By the late 1970s, Josef Paul Kleihues was appointed Director of Planning for the operation, with special responsibility for all the areas of new construction. Hardt-Waltherr Hamer, who had considerable experience in restoration, preservation, and community involvement, became head of those IBA operations that dealt primarily with existing structures. The Kleihues operation became know as "New IBA"; the Hamer operation, partly by default, was called "Old IBA."

The basic principle in both the New and the Old IBA was to mend the urban fabric—not by tearing out large pieces and replacing them with something dramatically different, but by inserting a little patch here and another there. A crucial principle established by Kleihues was that, if at all possible, infill sites and entire city blocks should be designed by several different architects to assure a degree of variety very different from the uniformity that had characterized some Ideal City projects of the 1920s. To make sure that West Berlin would not suffer from too much unity, Kleihues selected architects of various persuasions and very different cultural backgrounds to design and build cheek by jowl in the areas of the New IBA. And Hamer, though less concerned with the problem of excessive uniformity, pursued similar strategies. By 1980 ground was broken on the first projects.

"What would you do differently if you had to do it over again?" I asked Kleihues recently. "Well, I'd do it on a much smaller scale," he replied. "We were too ambitious in those early days. We just did too many things. A few demonstration projects—that might have been a good way to start."

IBA's accomplishments have been little short of spectacular. The old IBA, to start with, has recycled or refitted some 10,000 apartments; constructed daycare centers, schools, and other educational facilities; inserted some of these into existing apartment buildings or courtyards behind them; provided space for family stores and other neighborhood facilities; and created pocket parks and public gardens. All this was planned and designed in conjunction with

ow that the decade-long International Building
xposition is mostly completed, Peter Blake
amines its legacy of building and planning.



© Richard Bryant/Arcaid

ore's Tegel Harbor buildings stand on a small peninsula.

ants, neighbors, and community groups. was a laborious and often tense dialogue; all those involved in it felt they had a sonal stake in the final results.

ilding the new

anwhile, the New IBA under Kleihues's ection has completed several thousand artments and townhouses; it has built ools, daycare centers, a community li- ry, a power station, a major scientific earch institute, a water-purification plant, ks, gardens, and all sorts of ancillary uctures. To get these structures de- ned, the New IBA selected architects m all over the world, sometimes directly, re often through competitions.

cause all of this has to do as much with cess as with the final product, the ulti- te results—the successes and failures of A—will have to be judged by future gen- tions. But some of the results can be essed even now, at least in part. To do s, I will discuss five projects (out of many ens), not because these are necessarily IBA's finest contributions to contempo- y housing, but because they seem to be most interesting experiments.

here is more 'interaction' and 'participa- n' by the residents of this place than you'll find in any other IBA project," says architectural historian Claus Baldus, in reference to the LiMa project, a 48-unit apartment complex in Southern Friedrichstadt. Designed by the Dutch architect Herman Hertzberger, the LiMa apartments (so named because it is located on a triangular site where Linden and Markgrafen Streets converge) are arranged in a semi-circle around a central playground. All 48 family apartments look onto this playground.

Throughout the project, Hertzberger involved the people who would live here in large and small design decisions. The playground in the center of the courtyard, for example, has been decorated with mosaics of colorful broken tiles contributed by the residents themselves. Hertzberger and his artist-wife showed the children and their parents pictures of how Antoni Gaudí had done it in the Parque Guell in Barcelona and then let everyone participate.

You can get into LiMa's court from all directions. "It's not like those traditional Berlin courtyards that are cut off from the outside world and are often quite depressing," says Hertzberger. Because people can look into the courtyard from their apartments and from the many balconies, there is no sense of insecurity among the children or their parents. The apartment balconies are quite close together, but, at the same time, still private. Neighbors can chat from balcony to balcony if they want to. If not, they don't.

The second project is a set of eight new "urban villas" plus a ninth, existing building that used to house the Norwegian Embassy, and has been converted into an apartment house. Occupying an entire city block on the Rauchstrasse, in what used to be Berlin's Diplomatic Quarter, the project began with a competition won by the Luxembourg architect Rob Krier, who lives in Vienna.

The villas were designed by different architects from all over the globe. Krier himself did one of the villas and restored the former embassy, while Hans Hollein, Aldo Rossi, Giorgio Grassi, and others designed the other structures. The basic massing of the buildings was set in Krier's overall plan, so the entire block is a demonstration of how to achieve a degree of architectural variety without sacrificing urban unity.

Did they succeed? Yes and no. Clearly, the whole is considerably greater than the sum of its parts. The outdoor spaces between the villas are almost more pleasant than the villas themselves, most of which are boxy and finished in stucco painted a rather timid bureaucratic hue. Only Aldo Rossi's Villa has walls of bright red brick with dark-green steel lintels above doors and windows; all the others literally pale by comparison.

Still, the Rauchstrasse block was an important start. "I wish they had given more thought to the orientation of the apartments," a tenant told me. "When you have five apartments per floor, they don't have equally good views and you don't have sun in all of them." The tenant put her finger on something that plagues other IBA projects as well: they look good from the outside, but work less well for those who live inside.

Moore is more

"It's a sort of architectural zoo," the Berlin architecture critic Falk Jaeger says of the Tegeler Hafen (Tegel Harbor) project, a 350-unit apartment project in Northwest Berlin that is the work of architect Charles Moore and a group of American and European as-

sociates [RECORD, July 1989, pages 82-95]. The Tegeler Hafen complex is the nearest thing to Postmodernism at IBA. The dearth of Postmodern buildings is not surprising. After all, Europeans have never felt driven to invent some sort of fantasy past; they can look at the real thing just down the street.

Moore's fantasy past is an intriguing exercise: it is a building complex located on a man-made peninsula that extends into one of Berlin's many canals. The buildings form a series of courtyards very much in the best Berlin tradition. And although the units are repetitive and modular in plan, the architects designed them to create an extraordinarily romantic composition of mansard roofs, turrets, and balconies—all rendered in the pastel shades of California's Bay Region!

The Tegeler Hafen is wonderfully klutzy, perfectly "contextual," and right on target—if what you are trying to hit is popular taste. And unlike other high-style works at IBA that have received much critical acclaim, Moore & Co.'s apartments are well planned, and their little peninsula will be quite charming once the greenery matures.

My fourth IBA project is about as different from the Tegeler Hafen as Jefferson's University of Virginia campus is from Disneyland. It is an extremely disciplined city block of about 100 townhouses designed by the Milan architect Vittorio Gregotti and several associates.

Gregotti's group designed the block that faces the street—the Lutzowstrasse in the Southern Tiergarten District—and a group of German architects designed a series of "fingers" that extend behind Gregotti's building and contain additional townhouses and apartments.

The entire affair is quite geometric in plan, but Gregotti's facades are colorful and full of elegant details—including steel and glass bridges that link the long brick fronts facing the street. The spaces between the fingers are [illegible] leads to the townhouses and private [illegible] An unfortunate [illegible] be lurking and [illegible] playgrounds at street level. It is a convincing diagram for urban living—but not exactly what would pass for "low-cost housing" in the U. S.

Eco Houses: designing your own nest

"This is absolutely "*verruckt* (crazy)!" an elderly Berliner on his daily constitutional said to me. "This sort of thing really shouldn't be permitted!" The craziness in question is a set of three buildings, most commonly called the "Eco Houses," organized by Frei Otto next to the Rauchstrasse block. Containing 28 apartments (if that is the right term), the complex is as wildly experimental as anything that has been built anywhere in recent history.

First known for his innovative tensile structures (especially the Olympic stadium in Munich), Otto has expanded his interests in recent years to encompass all kinds of experimental ways of responding to environmental concerns. Otto's idea for the Eco Houses was to design a structural framework of reinforced concrete with two-story-high spaces between floor slabs and a complete network of pipes, ducts, and cables. This raw skeleton was then turned over to future residents who designed and built their own "nests" within the framework.

Each family was encouraged to pick an architect to help it plan and construct its future nest; most of them did, though some designed their own spaces. Many of the families, being of moderate means, did a great deal of construction themselves. All of the tenants were encouraged to provide outdoor spaces at various levels and were asked to "coordinate" their designs with those of neighbors and with the supervisory architect, a Berlin practitioner of superhuman patience named Herman Kendel, who had worked with Frei Otto in the past.

To anyone even remotely familiar with the process of designing "nests" for people and of getting them built, the Eco House method sounds like a sure-fire prescription for disaster. And, in the eyes of some, the three buildings may be just that. The houses are collages of brick, glass, canvas, plastics, steel, stone, wood, tile, fencing, siding, grass, rocks, plants, string, wire, plywood, copper, concrete, bird cages, pools, and at least one beehive. There are, in addition, bay windows, greenhouses, mansard roofs, outside stairs and ramps, paved walkways, roof gardens, playgrounds, and bridges over the roots of existing trees.

What did the critics have to say about all this? Some were almost speechless. Kleihues who, I suspect, considers the Eco Houses non-architectural, prefers not to comment.

Beyond habitat

Some of the very best buildings commissioned and constructed by IBA are not housing at all. These include an elegant water purification plant in Tegel designed by Gustav Peichl, an electrical transformer on the Lützowstrasse, and a handsomely detailed work of industrial architecture designed by the Berlin architects Max and Karl Kudler. Above all, IBA has created some of the finest urban gardens and other outdoor spaces. The unsung heroes and heroines of the IBA experiment may turn out to have been its landscape architects.

There is no question in my mind that IBA has turned out to be a huge success. One need not approve of every building erected under its program (and I don't), or of every architectural assemblage on IBA's many sites. One need only compare the results with what has been constructed elsewhere in the name of Utopia, over the past hundred years or so, in dozens of different locations all over the world.

The most dramatic contrast, needless to say, can be found on the other side of what used to be the Berlin Wall. There the commissars over the past 40 years wiped out large areas of what was left of East Berlin and replaced its neighborhoods with monumental avenues lined with precast-concrete apartment blocks, perfectly aligned—row upon row of Communist prison cells all precisely identical, all miserably built, and all today rapidly falling apart. On the other side, a different pattern developed: a free, slightly chaotic collage of all the many factors that make life in cities so exciting, including, above all, the visible and audible presence of the arts. "Life," as Lewis Mumford liked to say, "is really more interesting than Utopia." He would have enjoyed the IBA. ■

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The use of any glass in a fire-rated area is regulated by code requirements (local or national) as interpreted by the local authority having jurisdiction. In North America, to be an "approved" fire-rated product for 30 minutes or longer includes a two step qualification as follows:

1. FIRE: The glazing product, in a frame, is subjected to intense heat which begins at room temperature and climbs to 1638°F. for a 45 minute rating; 1700°F. for a 60 minute rating; and 1925°F. for a three hour rating.

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Safety-rated	No	✔	✔	✔	✔
Visually clear during fire	✔	✔	✔	No	✔
Short lead times	✔	✔	✔	No	No
Passes hose stream test	✔	✔	✔	✔	No

Caution: Glass tested for 30 minutes or less does not include the hose stream test and, if subjected to water (such as from sprinklers or extinguishers), may collapse within minutes.

More Facts On
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Having trouble remembering which product is which? Here is a brief summary of the primary characteristics that define each form of glazing.

[redacted]

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[redacted]

In certain situations, building officials may request a glazing product that offers both a fire rating and an impact safety rating. Just recently introduced, FireLite Plus is fully compliant with ANSI Z97.1 and 16 CFR 1201 (Category I). Clear and wireless, it carries a 60 minute fire-rated listing with UL and fits in standard fire-rated frames. Call Technical Glass Products for the latest details.

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Wire glass has been the traditional choice for fire-rated glazing over the years. The wires can create a more "institutional" look and feel, but for fire-rated locations where aesthetic appearance is not a major concern, wire glass offers an inexpensive option. Listed with both UL and WHI, it carries a 45 minute fire rating for sizes up to 1,296 sq. inches, and meets the safety requirements of ANSI Z97.1, but not 16 CFR 1201.

Contraflam:

Contraflam has achieved both a fire and a safety rating. It is an insulated glass unit consisting of 2 or 3 layers of tempered glass with a heat absorbing "gel" between layers. The finished glass units may require special framing since this design results in very thick panels (for a 45 minute rating, the unit is 1-5/8" thick). The system can be heavy (approx. 14 lbs. per sq. ft.), expensive, and generally requires special handling. In addition, since each unit must be made to size in Europe, lead time may be 8-10 weeks or longer. During a fire, the gel between the glass lites turns white, obscuring vision but reducing radiant heat.

Pyroswiss:

Pyroswiss is a tempered fire-protective glass from Europe. It has passed the UL and WHI testing for a ***maximum*** of 30 minutes. **Pyroswiss does not meet rating requirements of 45 minutes or longer because it cannot withstand the hose stream testing.** Typically, lead time for custom orders of Pyroswiss is approximately 8-10 weeks (some sizes may require less lead time).

We hope this information is helpful. If you have additional questions on a specific project, feel free to give us a call. We would be happy to help you decide which fire-rated glazing is right for you.

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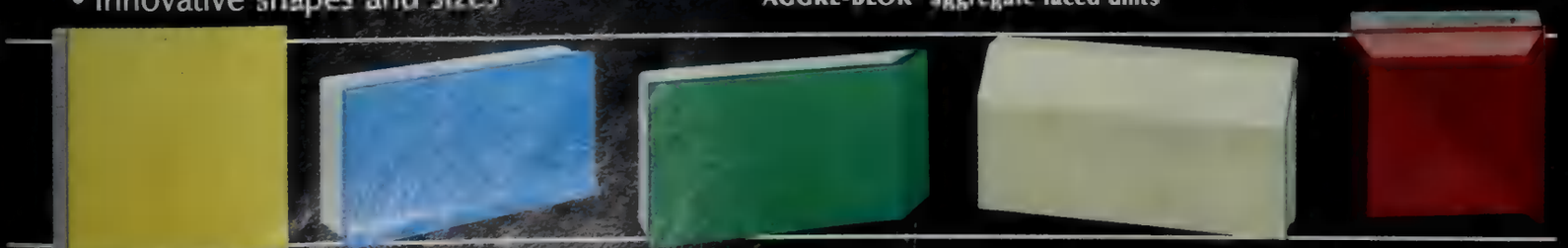
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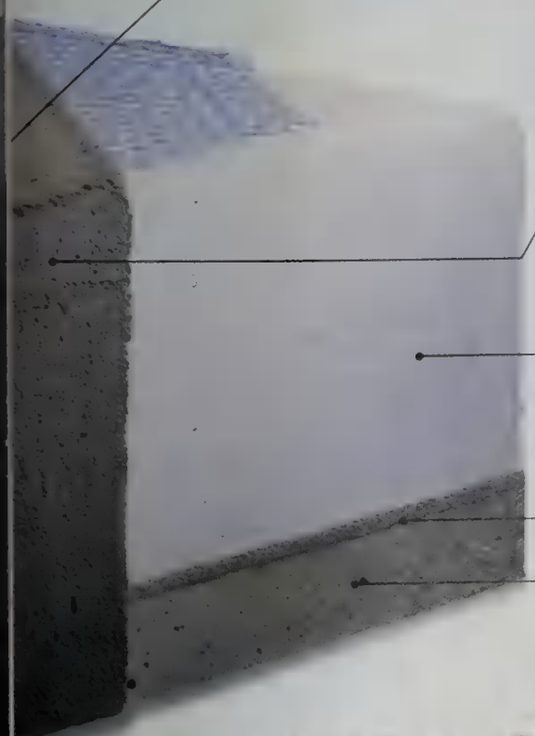
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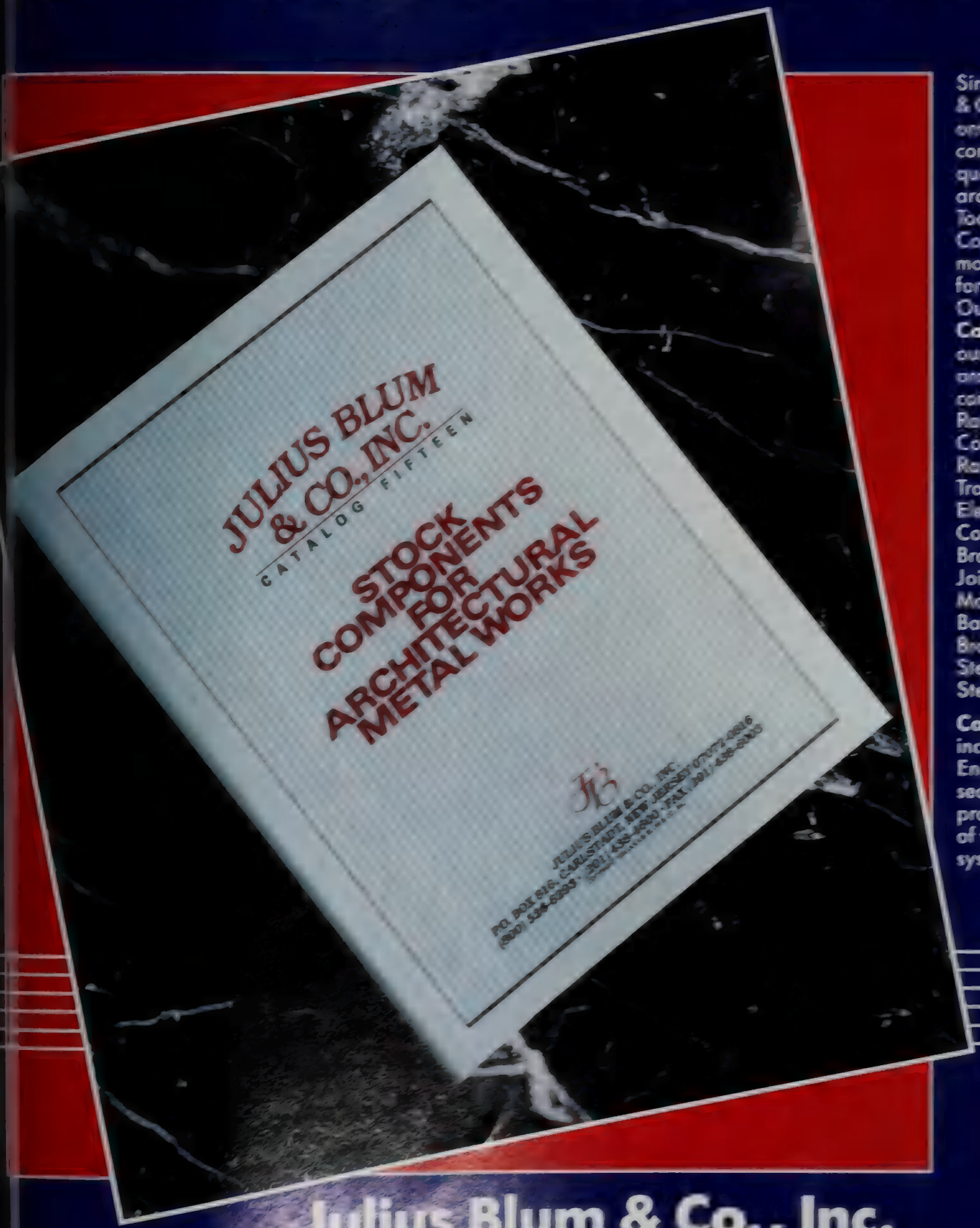
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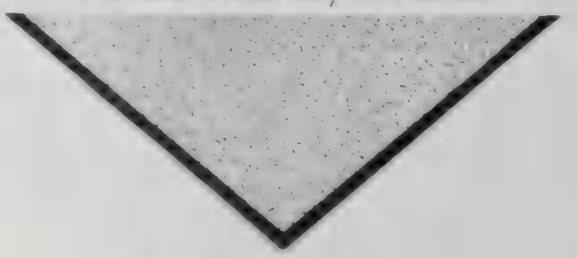
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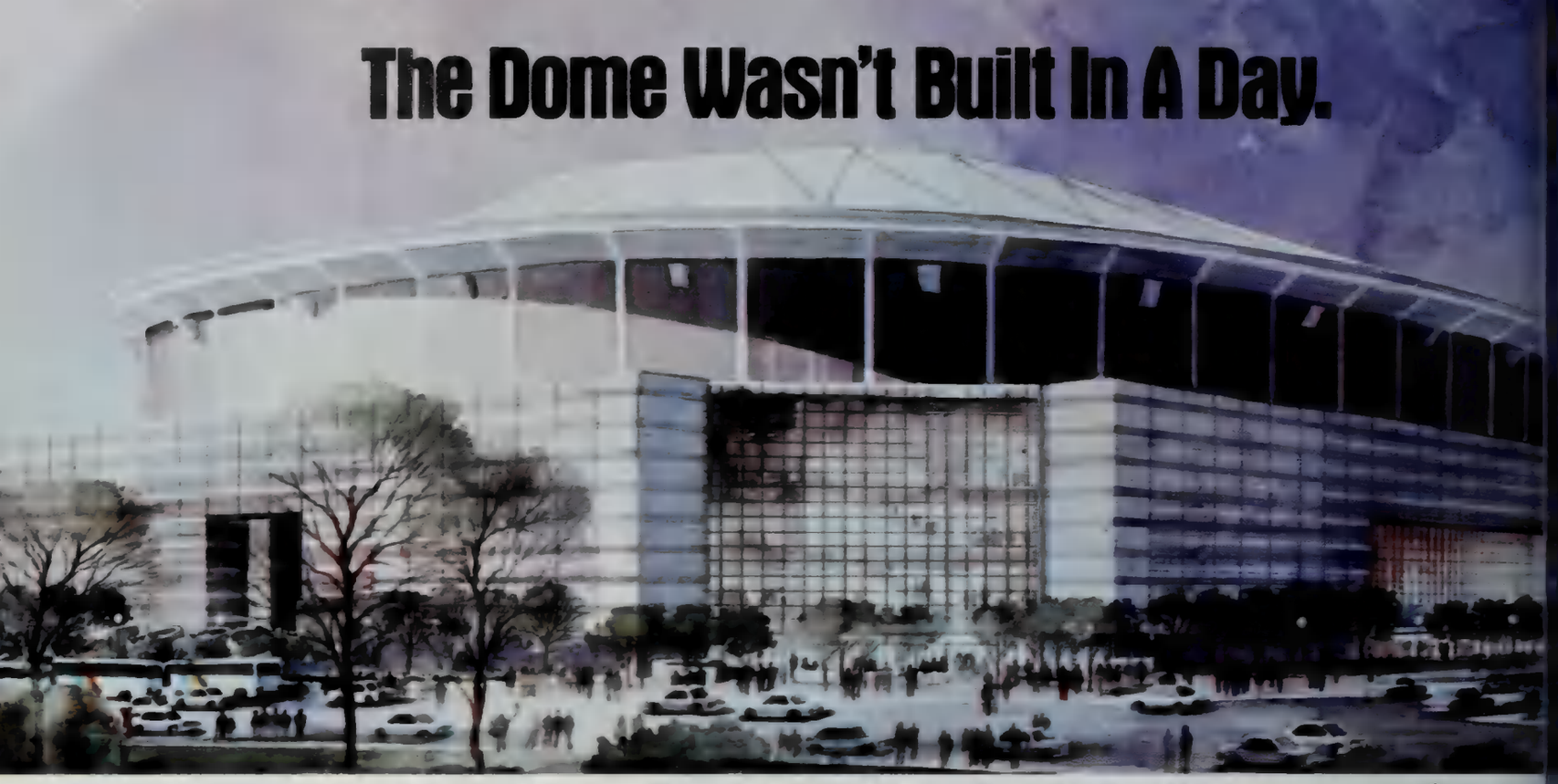
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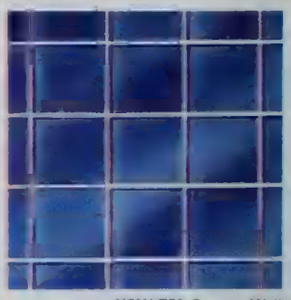
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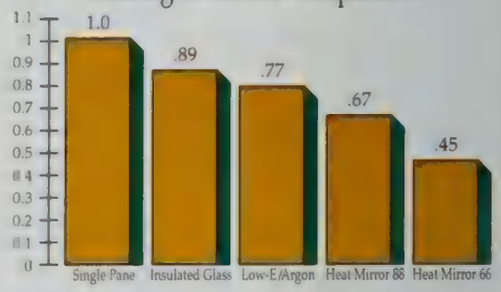
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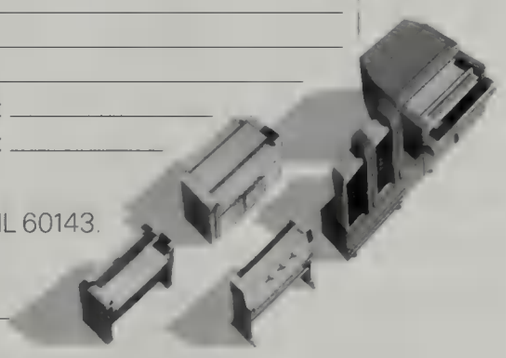
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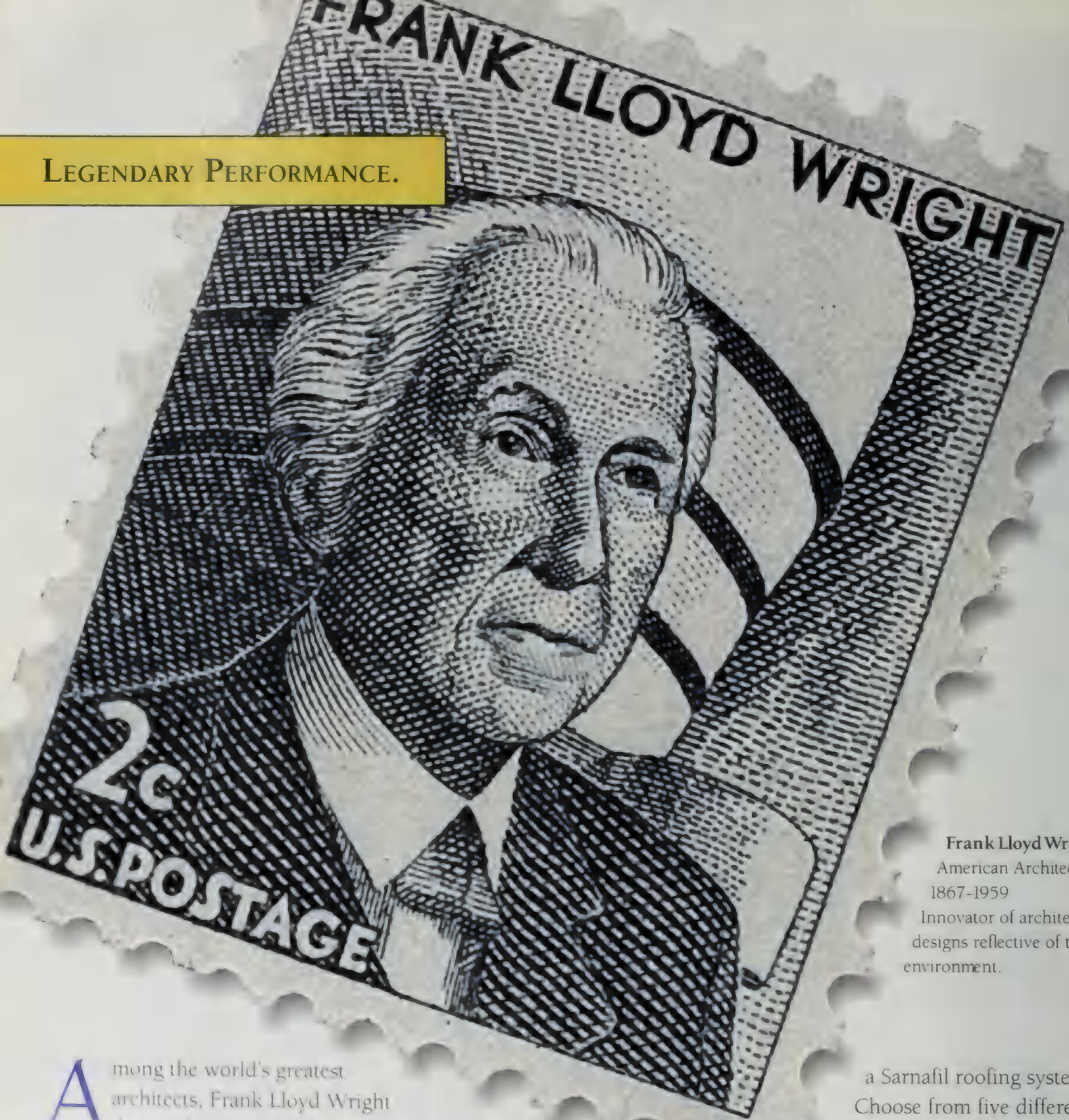


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Building Types Study 708/Schools

The last time the United States took such a long hard look at its educational system the Russians had just launched *Sputnik* and were about to send a few faithful Soviet dogs into space. This conspicuous display of technological prowess set off a bout of American soul-searching followed by a frenzy of school construction that lasted through the 1960s. New Math, language labs, open plans, and team teaching were all legacies of the national effort to revamp education. Today, the Soviet Union is gone, but a wave of school construction is once again sweeping over North America. Fast-growing areas such as the Southwest require large new facilities, as seen in HNTB's Fountain Hills Junior/Senior High School outside Phoenix (page 84). In older urban areas, the role of the school is changing. In Chicago, the Seward Hedges Area School designed by Ross Barney + Jankowski provides a safe haven for learning (page 92), while in New York City Richard Dattner's Intermediate School 218 offers a broad range of community services (page 104). Suburban Troy, Michigan, posed a different set of challenges and Perkins & Will responded with a generous campus design for Troy High School (page 96). For a smaller community in British Columbia, Hughes Baldwin Architects created an inspired solution for the Rogers Elementary School that can be easily expanded (page 108). Taking advantage of the climate in Davis, California, the Steinberg Group Architects organized Patwin Elementary School around outdoor spaces (page 110). Since much construction today involves renovating or adding to existing facilities, our Focus On section looks at five innovative school additions. *C. A. P.*

nufacturers' Sources
ted on page 139

Overhauling Education

Not since the 1960s have schools attracted so much attention from architects and educators. While the demographics of the so-called Baby Boomlet are the most obvious reason for all the fuss, a number of other factors are contributing to a movement that may very well overhaul the programming and design of elementary through senior high schools. The emergence of new computer and video technology, the changing ethnic makeup of the school-age population, the realization that many existing schools are failing to educate, and the appearance of major private developers are all key factors in the recent burst of school construction. As a result, architects are being asked to rethink everything from the design of the individual classroom to the relationship between the school and its community.

The driving force behind the latest generation of schools is the growing number of children. For the fourth year in a row, more than 4 million births were recorded in the U. S. While this doesn't match the original Baby Boom when births topped 4 million a year for 11 years in a row (ending in 1964), it's up from the mid-1970s when births declined to 3.1 million a year. Nationwide 47.5 million kids are now attending primary or secondary school and this will grow to 49.9 million by the year 2000, says Paul Abramson, president of Stanton Leggett Associates, an educational consulting firm. That prediction, however, is low, says Abramson, because it doesn't account for new Census data that shows higher birth rates for Hispanics and Asians.

In a period when construction for many building types is decreasing, the numbers for schools are brighter. In 1992, $10.7 billion was spent on building schools (kindergarten through high school, including vocational schools), up 56 percent from five years before, according to the F. W. Dodge Division of McGraw-Hill. Although the total figure for 1992 was down 5 percent from 1991, new-school construction was up 8.7 percent. Accounting for the overall drop was a downturn in renovations and additions, which were casualties of tighter government spending. "There's no question about continued demand for more schools," says Abramson. "Whether the public comes up with the necessary money is another matter."

Without a doubt, the role of the school is changing radically. No longer is it an institution isolated from the rest of society and open only six hours a day, nine months a year. Today some schools are open 14 hours a day—offering adult-education classes in the evening, library and meeting facilities for the entire community, and recreational activities year-round. "Involving the community is the key to schools of the future," states Selim Iltus, an architect who is co-director of the Children's Environments Research Group at the City University of New York Graduate Center. "The school has to b seen as a resource for everyone."

The incidence of crack babies, broken families, and violent crime, though, remind us that the outside world brings many problems int the school arena. Special-education classes for children with learnin disabilities, social services for those with weak family-support struc tures, and language programs for recent immigrants are added elements transforming schools. Many children today receive most o their meals and primary health care at school. "A lot of children require tremendous support services that just weren't part of the traditional set of services provided by schools," explains Abramson

In poor urban areas in particular, schools have become key tools in fighting social ills. In the Watts section of Los Angeles, for example the private Sheenway School has been a force in knitting a troubled community together since 1971. Now Dolores Sheen, one of the school's founders, is hoping to build a larger facility to include 23 e derly-housing units, an infant-care center, a pre-school, a communit center, a health clinic, a food cooperative, a few stores, a garden, and a K-12 school. The idea is to surround the school with "the integral components of a community," says Ron Radziner, a partner in Marmol, Radziner & Welsh Architecture, the architects for what Sheen calls "the Integral Urban School." MRW has accommodated Sheen's program by designing a village of buildings climbing a slop ing site and surrounding a landscaped plaza (opposite right).

As the role of the school has grown, so has its size. With expanded social services, larger science facilities, and equal recreational area for boys and girls, the amount of space per student has increased from about 150 to 180 square feet over the last 20 years in northeas ern high schools, says architect C. William Brubaker, of Perkins & Will. (Warm-weather schools need less indoor space.) But at the

The Victor Valley High School in Victorville, California, will be a $20-million facility organized around a two-story pod [illegible]. The Victorville City Council has [illegible]





ls schools provide expanded services for adults as well s children, architects and educators are changing the ay educational facilities are organized and designed.

me time, educators have recognized that many students get lost in ge schools. "All of the research shows that smaller schools are tter," says Iltus. "But it's not always financially possible to build aller schools. So it becomes a design and programming problem: w do you create small schools within larger ones?"

accomplish that task, some schools organize themselves into sev- al "academies" or clusters—often with one academy on each floor in each wing. One such school is the Victor Valley High School in tario, California, designed by the HMC Group (opposite left). Set begin construction in 1994 on a 60-acre site, the 3,000-student facil- groups buildings around three interdisciplinary clusters rather an various academic departments. Each cluster surrounds its own rtyard and operates as an semi-autonomous academic village. Ve wanted to get away from the one large quad scheme," says hn Nichols, the HMC partner-in-charge of the project. Separate rtyards also allow the school to secure certain parts of the cam- s, while other parts are open at night or during the weekend.

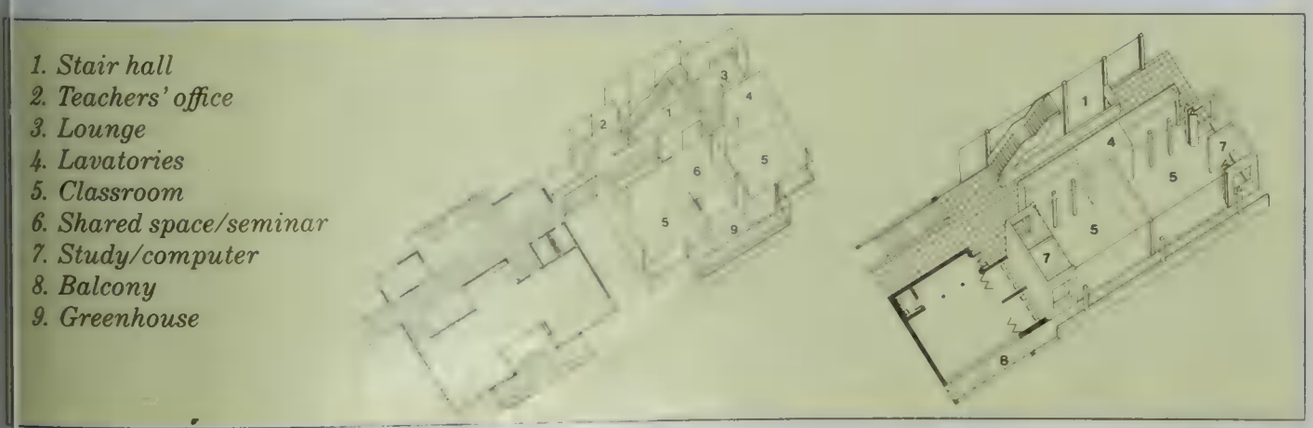
me cities are experimenting with theme high schools and other n-traditional educational approaches. New York City, for example, ens 37 such high schools this fall with themes ranging from eco- mics to social change and the health professions. Instead of veral thousand students, each theme school is to have only 500 to). Most of the new schools will be housed in existing buildings, but e being programmed by outside organizations—including Out- rd Bound and the Pratt Center for Community and vironmental Development. Ron Shiffman, director of the Pratt nter, is helping to organize the Benjamin Banneker School, which ll focus on community development and architecture and which ll be linked to a community development corporation (CDC) in- lved in rebuilding and redevelopment projects in the ighborhood. The CDC will provide hands-on training for students planning, design, and construction, says Shiffman.

ne of the most talked about trends in education today is the grow- g impact of the private sector. Encouraged by then President orge Bush, a nonprofit foundation called the New American hools Development Corporation began raising money for "a new generation" of experimental schools in 1991. Shortly thereafter entrepreneur Chris Whittle announced he would build and operate a national chain of 1,000 schools. Called the Edison Project, the for-profit venture is headed by former Yale president Benno Schmidt, Jr. and recently hired Venturi Scott Brown & Associates, Frank O. Gehry Associates, William Rawn Associates, and Billes/Manning Architects to work on the design of its schools. In an article in *Tennessee Illustrated*, Whittle stated his goal is "a complete redesign of the way we teach our children."

Benno Schmidt sees Edison schools experimenting with new methods of teaching in addition to traditional classroom instruction. Since all children don't learn at the same pace and in the same way, "we must provide more flexible, individual learning," says Schmidt. "This means you will need a different kind of architecture," he adds. "A repetitive and closed architecture won't provide the right learning environment for this program." Schmidt also states new electronic technology will have a great impact on the way children learn and how schools are laid out. "The electronic classroom will most certainly not be set up with rows of desks," says Schmidt. Although the design stage has yet to begin, the architects and educators involved in the project believe it is important to break the schools into various "houses" or academies, says Denise Scott Brown. The schools, which are to be built at the same cost-per-pupil as public schools, will emphasize interdisciplinary teaching and a variety of learning styles, explains Scott Brown.

A four-year research and design project at the Massachusetts Institute of Technology is investigating some of the same territory as the Edison Project. Headed by Roy Strickland, the MIT project will develop prototype designs for urban, suburban, and exurban schools. After one year, the group has come up with some innovative designs for a K-12 school in an urban setting, examining issues such as the school's ties to its community and ways to design classrooms for more flexible teaching methods (diagrams below).

No one knows whether any of these new directions will pass the test of time. What *is* clear is that a growing number of people are re-examining the basics of education in America. *Clifford A. Pearson*



Designs developed for MIT's New American School Design Project: scheme by Anne Townes has shared space between classrooms and a lounge across the hall (far left); scheme by Veronica Pedrini has study areas in each classroom (left).

wings by Jennifer Mecca

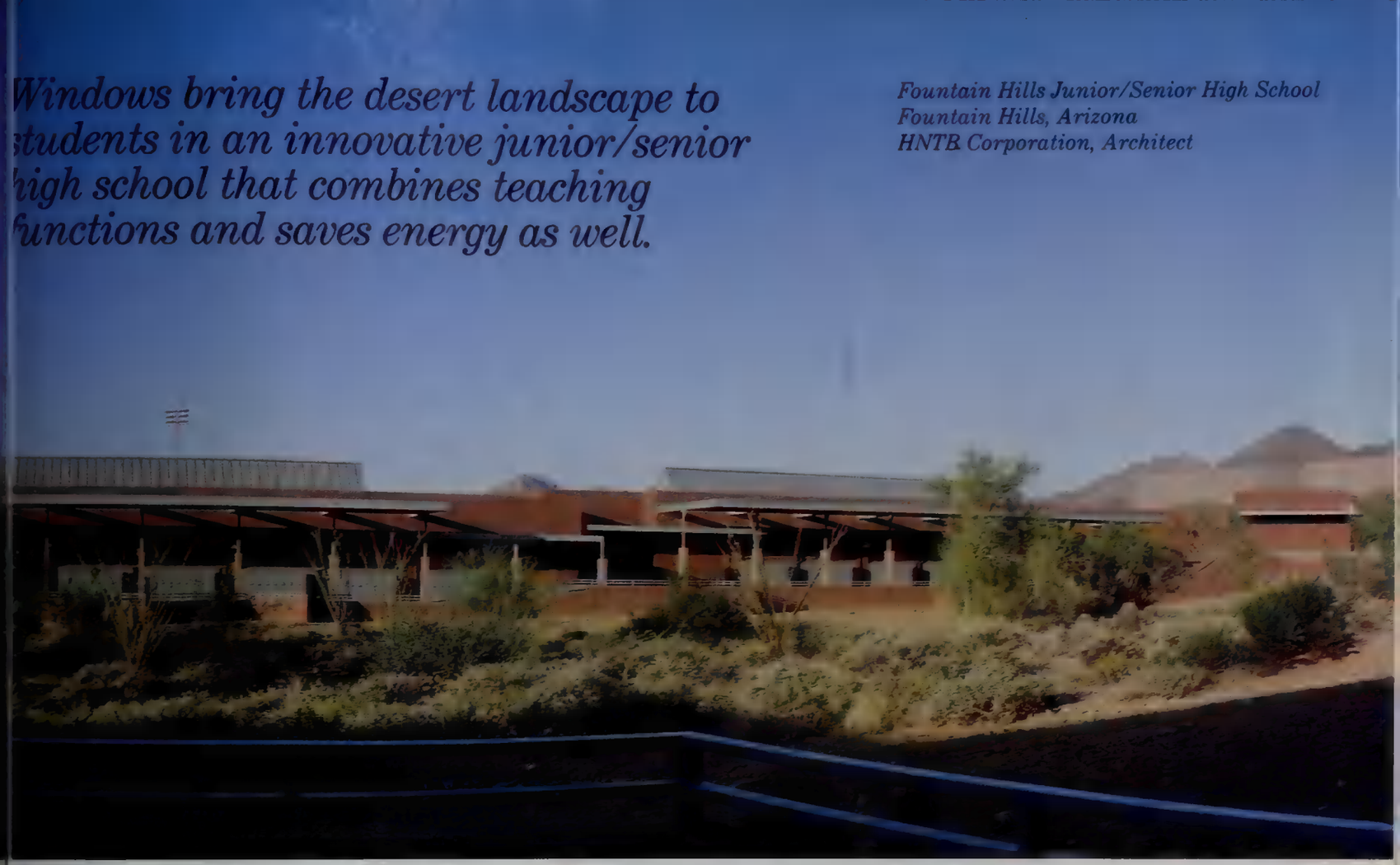
Open Minded





Windows bring the desert landscape to students in an innovative junior/senior high school that combines teaching functions and saves energy as well.

Fountain Hills Junior/Senior High School
Fountain Hills, Arizona
HNTB Corporation, Architect





School boards across the nation spurn windows because they supposedly distract students' attention and need constant maintenance, thus sacrificing daylight and fresh air. An exception is Fountain Hills outside Phoenix where harsh sun and temperature extremes are the norm. The local school board asked architects HNTB for buildings that would minimally disturb 52 acres creased by arroyos, locally known as "washes" because they fill with streams after rains. And the board wanted windows so students could appreciate the beauty of the site.

HNTB gave them what they wanted and more—skylit interior corridors, saving on electric lighting, windows that open on pleasant days, saving on cooling, and outdoor corridors that bring people in close contact with the desert. Project architect William Waldrom describes the desert not as arid sand but as a "living forest" filled with native plant life and animals, a schoolyard that educates students in desert ecology. Plants displaced during construction were transplanted elsewhere on the site.

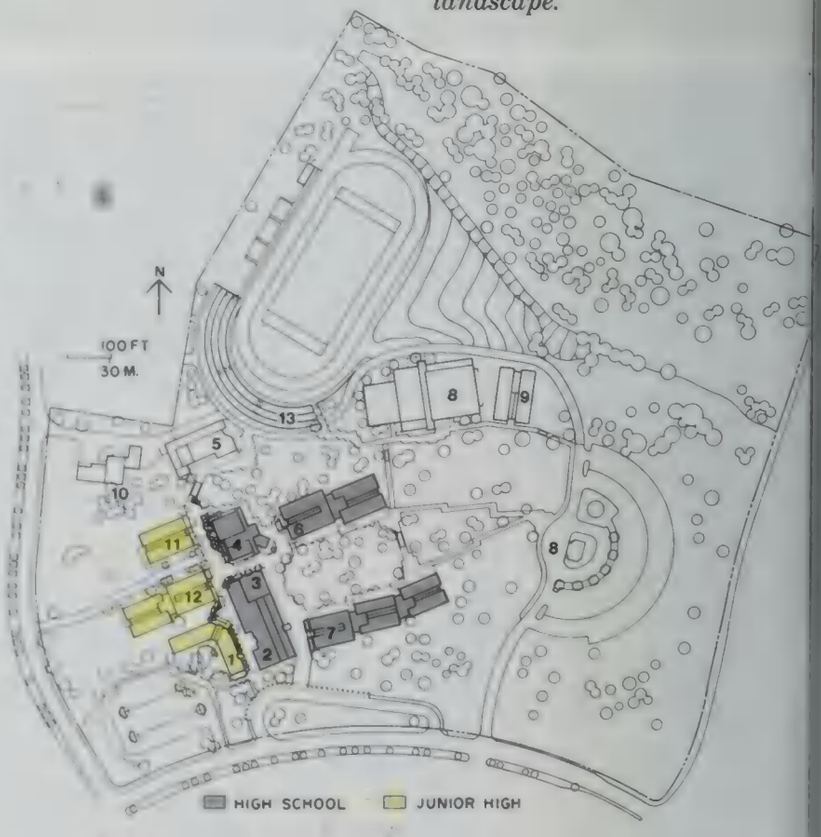
Has this open solution paid off? It has made the 900 students appreciate their school, says Waldrom. Not only are the windows untouched, but walls are graffiti-free. The community *is* highly civic-minded, he adds, noting that the school's evening use by adult organizations, such as the local Kiwanis, may further deter graffiti-minded vandals.

A second innovation for the region is the combining of junior and senior high schools into one 198,000-square-foot facility. To allay parental fears that younger students would be exposed to older students' more worldly ways, classroom groups are separated. The junior component, in three classroom clusters (left in plan, this page), is separated from the five-cluster senior high (right in plan) by a common auditorium, cafeteria, music facilities, media center, and library. These facilities, along with the gymnasium, technology laboratory, and football field, are the most expensive elements in a school to build and maintain. It was the economy of sharing these facilities that overrode parental objections to combining junior and senior high schools in this small community of 10,000. While common facilities are used in shifts, junior and senior high students do intermingle when younger students attend advanced courses, another advantage of the joint arrangement. Other communities in the area are studying the project and considering whether a similar scheme might work for them.

Though the facility's architecture underscores its natural surroundings, electronics are an acknowledged presence inside classrooms. Announcements that students once trooped into an auditorium to hear are now viewed in closed-circuit television-linked classrooms. School-election campaigns are also conducted on the system, and excess conduit is in place for future high-tech additions. "Shop," as it was once known, where students received vocational training in wood- and metal-craft, has been largely superseded by technology labs, where students use robotics to hone 20th-century skills.

Despite [illegible] construction (see caption, page 89), costs for the [illegible] sold to $70 9-million or slightly over $70 per square [illegible] on-board thermal-storage tank supplies fan-coil [illegible] during the night, when the off-peak rates [illegible] utility company are one-third of the day [illegible] operations costs. This complements [illegible] and sun-shading devices (see [illegible] consumption. *Charles K. Hoyt*

To keep the site as undisturbed as possible, the architects had to cope with up-and-down grade changes and an overall elevation change of 50 feet from the north to the south boundaries—a challenge to new ADA requirements. Not only did they have to position buildings to avoid internal grade changes, they also had to lay out walkways of exposed-aggregate and salt-finished concrete in gentle slopes. The exposed, integrally colored masonry units used for walls not only recall a locally favored Frank Lloyd Wright tradition, but—compared with the stucco-covered concrete block often used here—reduce the number of trades needed for construction and maintenance. A clear masonry sealer that prevents water absorption will be renewed every five years. Local stone, used as a base under the units, visually ties buildings to landscape.



1. *Administration*
2. *Media center*
3. *Lecture hall*
4. *Music-band/choral*
5. *Cafeteria*
6. *High school north classrooms*
7. *High school south classrooms*
8. *Gymnasium*
9. *Technology lab*
10. *Central plant*
11. *Junior high north classrooms*
12. *Junior high south classrooms*
13. *Amphitheater*

Timothy Hursley photos









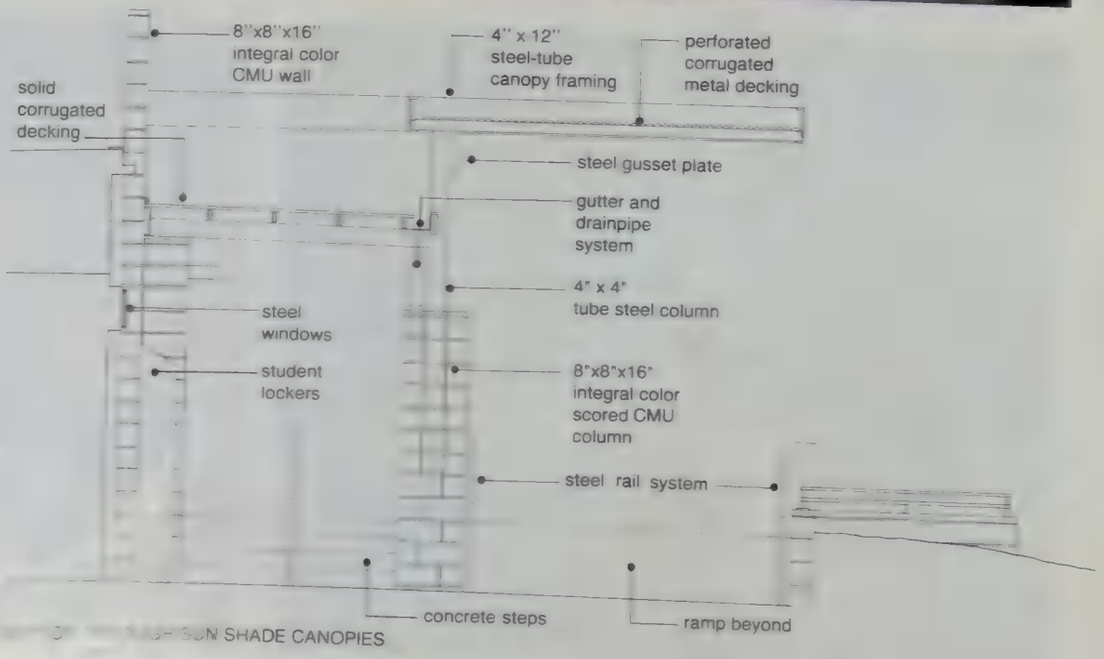
o Close

'aking the sun a friend. "Sun is the big-
est factor," says HNTB project architect
illiam Waldrom in talking about design in
rizona. Nonetheless, local residents are so
sed to it that their tradition is to put
udent lockers on the outside of buildings
accommodate this practice, prevent walls
id sidewalks from absorbing heat, and pro-
de pleasant passage around and between
ildings, the architects devised relatively
expensive and maintenance-free canopies
ere are two types. One provides solid
ver over the lockers (left in sections be-
w). The second is higher, cantilevered, and
vered with corrugated, rolled, perforated
aminum (right in section.) When the sun is
it, the perforated metal provides dappled
ade much like that of the local small-
afed palo verde tree. During rainy
nditions, the water runs through the
rforations and down across the sloped
ving, cooling it as it goes and feeding the
te's natural drainage and irrigation sys-
m, the arroyos. Even in very hot weather
ie recent local record is 122 degrees), the
mbination of canopies and the area's low
midity make the outside areas bearable if
t always comfortable.





*sic construction of the build-
gs is economical: poured-
ncrete floor slabs and
asonry-block walls spanned
steel joists and steel decking
vered with concrete. Roofing
elastomeric foam and stand-
g-seam metal. Termite
ielding is required under
or slabs in the desert to
otect wood cabinets. Despite
derate temperatures during
rts of the school year, ther-
al-glazed windows not only
d to be screened from the
n, but thoroughly insulated
ause summer temperatures
en soar into the 100s.*



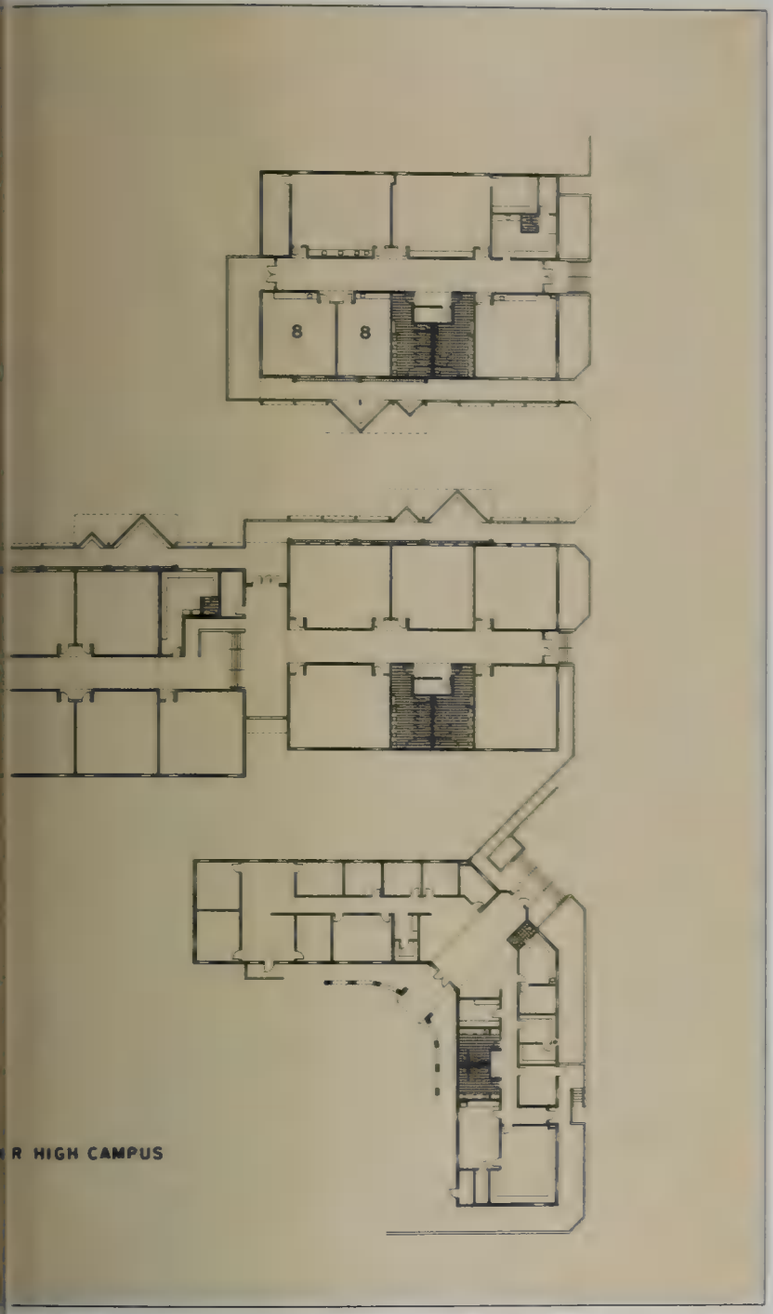
SUN SHADE CANOPIES

1. *Junior-high stacks*
2. *Senior-high stacks*
3. *Reading niches*
4. *Computer lab*
5. *Lecture hall*
6. *Art studio*
7. *Lab*
8. *Classroom*
9. *Music*











Classrooms are square in plan for flexibility in arranging furniture to suit an individual teacher's preferred teaching method. Square classrooms also produce shorter corridors than the more usual long-side-to-the-outside-wall arrangement—a distinct advantage on the sloping terrain, where otherwise there would be level changes within individual corridor runs. (Note that local fire codes require two exit-entries in each space.) Future expansion will add six-classroom units to the ends of existing wings. Courtyards are designed to allow classes to move outdoors during good weather.

Credits

Fountain Hills Junior/Senior High School
Owner: *Fountain Hills Unified School District Number 97*
Architect: *HNTB Corporation—Donald P. Keuth, vice-president-in-charge; Scott T. Ebert, director of architectural services; Trudi G. Hummel, project director; Jay R. Silverberg, senior project designer; Paula M. Tingleff, project manager; William X. Waldrom, project architect/construction administration; Jackie M. Keller, landscape architect*
Engineers: *HNTB Corporation, civil and structural; Lowry-Sorensen-Willcoxson, mechanical/electrical*
General Contractor: *D. L. Withers*

Beacon of Learning

Seward Hedges Area School
Chicago, Illinois
Ross Barney + Associates, Inc.
Architect



Steven Hall/Hedrich-Blessing photos





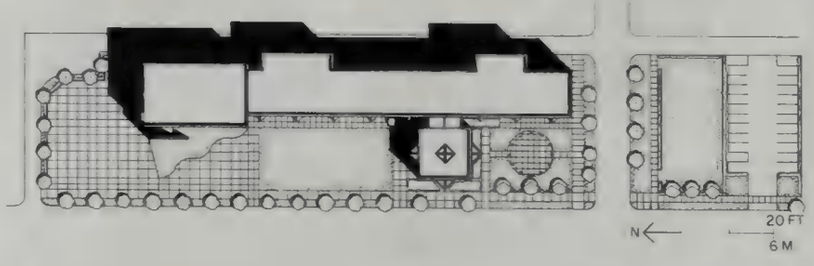
Providing color on the building (left and above) in the form of bright masonry units, was a priority for architect Carol Ross Barney, who notes that many shopping mall exteriors provide a better model of what makes the exterior of a school appeal to children than do most school buildings. Translucent-fiberglass insulating panels form the corners of a pyramid that intersects the cube-shaped activity-center wing (left and above). The apex of the pyramid is illuminated from inside, so it can function as a nighttime beacon.

The Seward Hedges Area School sits on a lot that wouldn't be anyone's first choice. Located on a partial city block in the Back of the Yards neighborhood, adjacent to the former Chicago stockyards, the 121- by 456-foot site was the only land available in the area. It backs up to an alley that provides access to the service entries of several light commercial buildings. "Our first priority was to make the building a good neighbor," says architect Carol Ross Barney, referring to the way the new school would mesh with these buildings and the two-story, wood-frame, single-family houses typical of the neighborhood. Instead of pushing the pre-kindergarten through eighth-grade school tight against the street and putting the playground behind, the architects did the opposite. The playground was built in front of the building, so children could play within view of both classrooms and nearby homes, providing at least a visual sense of security in an area plagued by gang activity.

This decision and, in turn, the long, shallow shape of the site, influenced the building's floor plan. "We had to give up double-loaded corridors and go to three floors, which we normally would not have done. We wound up with very long corridors too," says Ross Barney. "But it does work out in terms of the structural system." Standard-sized, 12-inch-thick, 40-foot-long precast concrete floor slabs were chosen, supported by 14-inch-thick, insulated masonry bearing walls. Gypsum board on metal studs was used for interior partitions. Normally, more indestructible masonry units would have been specified here but, according to Ross Barney, "the dead-load was such that we would have had to go with a 14-inch-thick slab, which was a custom thickness. We went with the lighter partitions." In abuse-prone areas, such as corridors, the gypsum board is covered by painted, 1/2-inch-thick particle board wainscoting to protect it against impact and provide an easily repaired wearing surface.

Ross Barney is adamant about the importance of introducing secondary colors to the exterior and interior of the building. This not only provides relief from the neutral backdrop of the city but also sends a signal to children that the school is a place of significance. "If you want to see a building whose importance is stated by the architecture, look at a shopping mall. That speaks to children. Too often, schools take on sort of a 'brown brick governmental building' sort of appearance," says Ross Barney. "Who wants to go there? We're making this a significant place by using color [opposite, left]. We also toned down the color as the spaces get closer to the classrooms, which are supposed to be undistracting, like a plain canvas."

The school's library is stacked on top of a multipurpose display space inside a checkerboard-hatched cube that intersects a pyramid made of insulated fiberglass panels. The activity wing is connected to the classroom wing through a vestibule (see plan, page 94). This allows the classrooms to be secured separately, so the multipurpose space may be used for public activities at night. This flexibility was insisted upon by the client, says Ross Barney. "We wanted the school to operate as a beacon in the neighborhood, so we've illuminated the apex of the pyramid from the inside," she adds. For the Back of the Yards, it's a beautiful symbol. *Charles D. Linn*







One of the single-loaded corridors in the Seward Hedges School (left) displays utilitarian finishes: concrete masonry and particle-board paneling, tempered with colored daylight and bright vinyl composition tile. The school was built for about $82 per square foot. The daylit-filled vestibule (opposite constructed of translucent fiberglass panels, links the classroom wing to the display room. The bridge connects the classroom wing to the second floor of the library.

Credits

Seward Hedges Area School
Chicago, Illinois
Owner: *Chicago Public Schoo*
Architect: *Ross Barney + Jankowski, Inc.—Carol Ross Barney, principal-in-charge; James C. Jankowski, Daniel J. Miller, Wesley Hoover, project team*
Engineers: *Martin/Lam (structural); Beling Consultants (mechanical/electrical)*
General Contractor: *UBM, Inc*

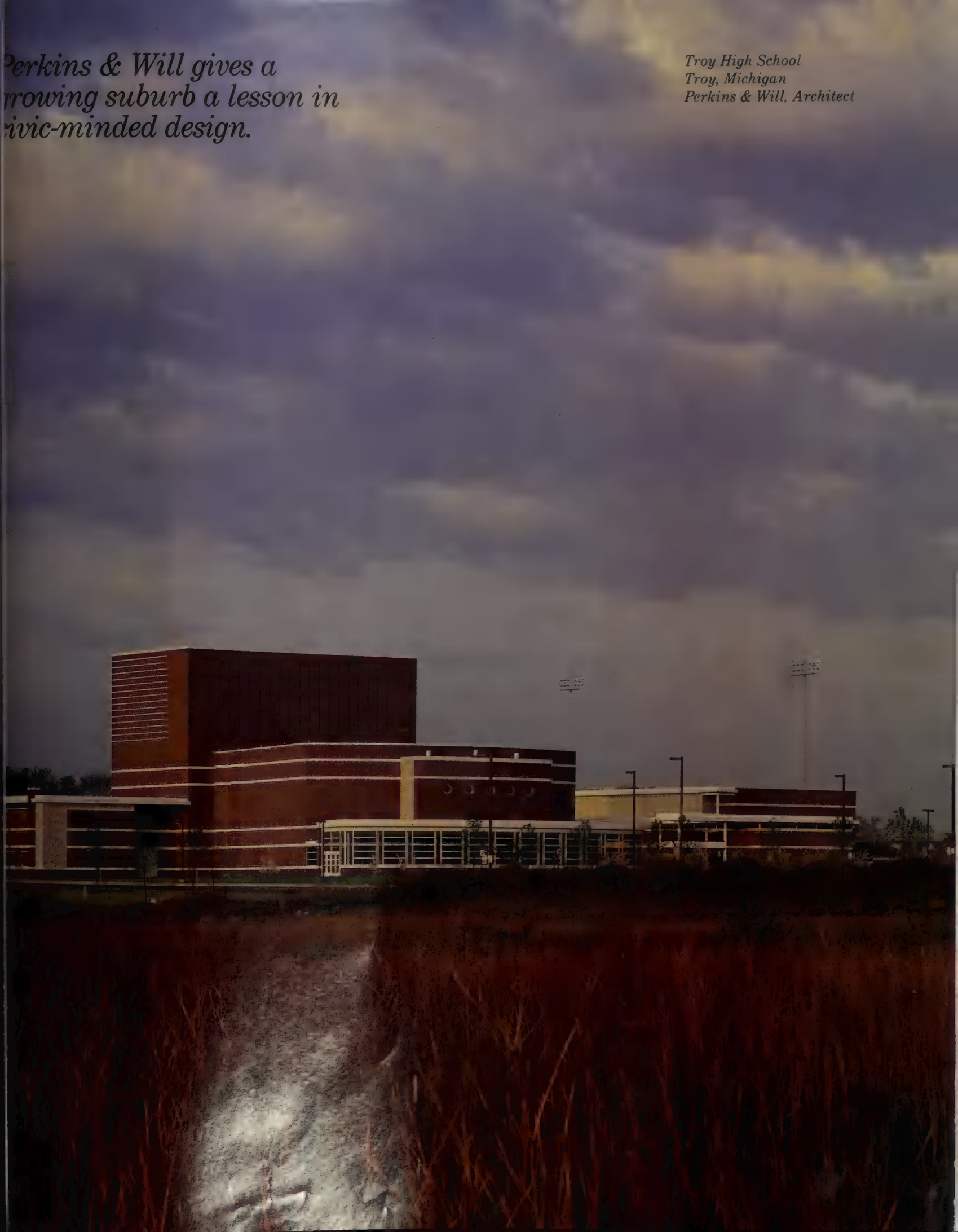


School Spirit



Perkins & Will gives a growing suburb a lesson in civic-minded design.

Troy High School
Troy, Michigan
Perkins & Will, Architect



The trend is toward creating educational parks on larger sites and using the facilities as cultural and recreational centers," observes C. William Brubaker, a longtime Perkins & Will principal and a recognized expert on school design. Together, these issues led to the rejection of an early scheme by Brubaker and partner Ralph Johnson to renovate an existing high school in downtown Troy, Michigan, where the cost of correcting outdated exiting conditions and upgrading derelict mechanical and electrical systems proved less cost-effective, and far less fetching, than a $36-million new building.

The new Troy High School's seemingly effortless union of complex program and imaginative design stems from the unique collaboration of Brubaker and Johnson. Johnson is an anomaly on the current architectural scene—a name "designer" in a corporate firm; a stylistic renegade in the mainstream Modernism course charted by the Chicago office of Perkins & Will. His success, however, comes from his unwillingness to sacrifice function for form. Architect Joe Valerio, fellow member of the Chicago 8, an informal critique group, says of Johnson's work: "It's some of the most beautiful stuff being built today, but Ralph talks about it in planning and functional terms and not specifically about its beauty and cultural impact."

Located at the edge of a booming Detroit, Michigan, suburb, Troy High School is the most recent in the architects' series of completed school commissions [RECORD, January 1991, pages 91-97]. Although the town offered no obvious architectural heritage for the duo to draw upon, its proximity to Bloomfield Hills and Eliel Saarinen's Cranbrook Academy was "a mild influence," according to Johnson, who terms the overall esthetic of the 1,800-student facility "loose Prairie style." The composition of horizontal load-bearing brick blocks of classrooms, punctuated by the more sculptural forms of the library and theater, responds as much to the characteristics of the sprawling 72-acre site as to any notion of regional style.

The classroom wings form U-shaped courtyards, which open toward a 10-acre wooded grove at the edge of the site (plan page 100). The more public elements, the theater and main entrance (the latter marked by a dramatic glass-encased stair tower—opposite), face the town. Salmon-, rust-, and white-colored brick create a series of bands overlaid by horizontal and vertical strips of windows. The use of brick was also a response to local market conditions: a surfeit of unemployed Detroit bricklayers made the design cost-effective. In addition to low-maintenance, insulated concrete-block cavity walls have low thermal conductivity, an important concern in the Great Lakes region.

Whereas the firm's famed Crow Island School in Winnetka, Illinois, marked a revolution in teaching philosophies in 1940 (see Up Close), more recent curriculum changes incorporated into the design of Troy High School—such as the use of technical equipment as educational tools—are more gradual. All classrooms are equipped with telephones and video monitors. Indirect fluorescent lighting accommodates computer work. "The change is largely invisible," Johnson says of cable trays in corridor ceilings, the most extensive architectural impact of new teaching methods.

More [illegible] is the need to address the requirements of users with physical disabilities (elevators connect the three academic floors), the [illegible] presence of women's athletics (equal-sized playing [illegible] male sports are now accepted policy), and the [illegible] the school within the community, particularly in [illegible] as rapidly as Troy. *Karen D. Stein*

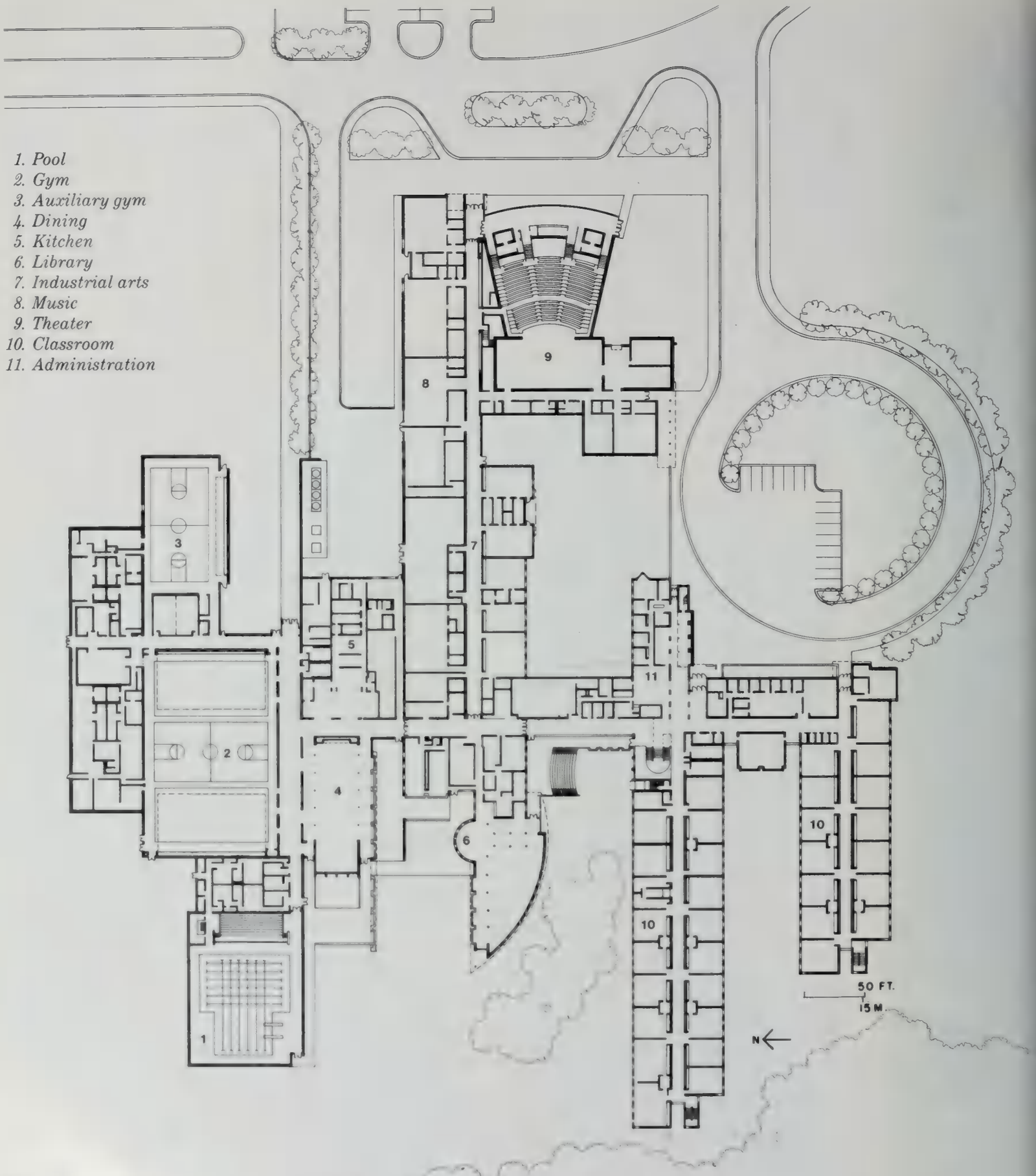
Up Close

Redefining a building type. Perkins & Will established its reputation as specialists in school design with the Crow Island Elementary School in Winnetka, Illinois (Perkins, Wheeler & Will with Eliel and Eero Saarinen) in 1940. Some 50 years later, the residential scale, informal yet organized plan, and interweaving of exterior and interior spaces of Crow Island—the physical embodiment of a relaxed educational atmosphere—still guides partners C. William Brubaker and Ralph Johnson. Recent Brubaker and Johnson projects elaborate on the theme of school-as-miniature-village. Forces outside the architectural profession continue to influence design decisions: demographics of new towns, with schools acting as community centers (school theaters, gyms, and classrooms are increasingly used after-hours for community events and continuing education programs); a growing interest in energy conservation through the use of insulated surfaces and well-placed windows that limit solar heat gain; and the use of computers and video as educational tools. Brubaker likens the need for a flexibile solution, which adapts to changes in technology and curricula, to the demands of speculative office building design: "A good school is never 'finished,' " he comments in a recent essay. "It evolves and adapts as people and programs evolve."



Balthazar Korab Photography




1. Pool
2. Gym
3. Auxiliary gym
4. Dining
5. Kitchen
6. Library
7. Industrial arts
8. Music
9. Theater
10. Classroom
11. Administration
50 FT.
15 M
N

August 1993



avoid an intimidating insti-
tional appearance, Perkins
Will broke the 300,000-
uare-foot Troy High School
to linear classroom blocks
ranged around communal
aces and administration of-
es, creating a village-like
tting (plan opposite). The
chitects placed the school in
e southwest corner of a 72-
re site, adjacent to a 10-acre
oded grove, in order to take
vantage of views and to
reen portions of the structure
om the neighborhood. A cir-
lar drop-off courtyard and a
ick, glass, and aluminum
ir tower—a "campanile,"
cording to the architects—
ark the main entrance (above
d top right).

e barlike parallel classroom
ngs, which run east to west,
e arranged to form court-
rds, allowing daylight to
ter classrooms on both sides
double-loaded corridors.
ntrasting with the recurring
ements are the more sculp-
ral forms of the library (a
tunda) and theater (a pie
dge), which fans out toward
wntown. Like the theater, the
m is often used for commu-
ty events and has a separate
trance and nearby parking.





Balthazar Korab Photography





© Balthazar Korab Photography



Perkins & Will met the faculty's request for daylit spaces with an extensive use of windows, clerestories, and skylights. Each classroom has three operable windows, but for security reasons, windows on the ground floor are smaller than those on upper floors. The south and east-facing cafeteria has larger openings (bottom left). A toplit rotunda contains the periodical room (below).

Credits
Troy High School
Troy, Michigan
Owner: *Troy Public Schools*
Architect: *Perkins & Will—Ralph Johnson, design principal; C. William Brubaker, managing principal; John Arzarian, Jr., senior designer; James Toya, project manager; Carlos Parrilla, senior technical coordinator; Randy Takahashi, structural engineer; Jack Ramm and Michael Michalski, mechanical engineers; Elizabeth Fakatselis, Susan Stevens, George Witaszek, Eric Spielman, and Robin Randall, project team*
Consultants: *Schuler & Shook, Inc. (theater); Stan Roller, Inc. (acoustic); E. F. Whitney (kitchen equipment)*
General Contractor: *Barton Malow*





Community Service



© Norman McGrath photos





The west facade (opposite) curves away from Broadway to keep classrooms from the noise of the street. The school looks onto Fort Tryon Park in northern Manhattan (top). Most students enter the school from the south, where a playground sits across the street (above).

Former New York City School Chancellor Joseph Fernandez called it "the school of the future" when it was dedicated last year. But I. S. 218 looks like it has been around since the 1930s—a neighborhood landmark with Art Deco touches similar to those found on nearby apartment buildings. What makes this school progressive is not any superficial styling—no space-age pods or high-tech light fixtures—but the services it provides and how it is organized.

I. S. 218 is a real community school, where children *and* parents come to learn. Serving the predominantly Hispanic neighborhood of Washington Heights near the northern end of Manhattan, it is an intermediate school for 1,200 students, as well as a satellite college operated by Mercy College, and a health center run by the Children's Aid Society. The building stays open 15 hours a day, six days a week, and principal Mark Kavarskey wants to keep it open on Sundays too. "We call this a 'seamless' program," says Kavarskey, "because there's no separation between daytime and evening activities."

Spaces for community programs and administrative functions occupy the first floor, while classrooms and other educational spaces are on the four floors above. To prevent students from getting lost in the crowd, the school is divided into four "academies" of 300 students, each with a focus and core curriculum. Although the academy program was developed after the school was designed, Kavarskey says "there was an easy marriage between the educational program and the building's architecture."

A steel-frame structure with concrete-and-metal-deck floors, I. S. 218 presents two faces to the city: a great curving facade on Broadway that serves as the main entrance to the school and a less formal side entry enlivened by a colorful mosaic mural where most students arrive. The Broadway elevation embraces a somewhat austere semicircular courtyard that looks across the street toward Fort Tryon Park. To capture views of the park, architect Richard Dattner placed classrooms along the Broadway side of the school and put special-purpose spaces, such as laboratories and computer rooms, in the back of the building. Attached to the back of the classroom wing of the building is a structure with a 600-seat auditorium on the first two levels and a 26-foot-high gym above. Although air conditioning is provided (from variable-air boxes set in hung ceilings), windows in classrooms are operable. Heat is distributed via a perimeter steam system.

By curving the Broadway facade, Dattner was able to place more classrooms along this edge of the building and give them views of the park. "At MIT I lived at Baker House," says Dattner, "and I remember being impressed by the way [Alvar] Aalto used a curving edge to give all rooms a view of the river." At its two ends and where it meets the auditorium and gym structure, the curving corridor expands to create informal social areas. According to Kavarskey, these areas have been well used for student art displays, parent meetings, and chance gatherings.

Because I. S. 218 is a community school, the people of Washington Heights were very involved in planning it and even in selecting the architect. Working in Dattner's favor were his long residence in the area and his experience designing other New York schools (his P. S. 234, see RECORD March 1989, page 108, was a big hit with both kids and adults). Like many of the students at I. S. 218, Dattner came to this country as a child, speaking Spanish but no English. Sharing the immigrant experience, the architect and community together created a school that gets its strength from multicultural roots.
Clifford A. Pearson







The curving facade and main entry gate form a protected courtyard in which kids can play or gather (left top). The bands of different colored brick recall the Art Deco styling of some apartment buildings in the area. Glass block brings daylight into the main stairway tower in the center of the elevation. A mosaic mural at the south entrance (left bottom) reflects the Hispanic culture of the local community. A shallow dome ringed with a fluorescent cove tops an informal gathering area just off the classroom corridor (above). Community facilities and shared spaces such as a cafeteria and an auditorium are on the ground floor (plans opposite). On upper floors, classrooms are placed around the front of the school, while special-purpose spaces, such as computer rooms and laboratories, are along the back.

Credits
Intermediate School 218
New York City
Owner: *New York City Board of Education*
Architect: *Richard Dattner Architect—Richard Dattner, partner-in-charge; William Stein, Jaime Ortega, associates-in-charge; Michael Daniels, project architect*
Engineers: *Goldreich, Page & Thropp (structural); Robert Derector Associates (mechanical)*
Landscape Architect: *Miceli, Kulik, Williams*
General Contractor: *Arnell Construction*

1. *Courtyard*
2. *Rotunda*
3. *Auditorium*
4. *Dining*
5. *Kitchen*
6. *Staff dining*
7. *Office*
8. *Medical suite*
9. *Community room*
0. *Classroom*
1. *Computer*
2. *Word processing*
3. *Dance*
4. *Lockers*
5. *Gymnasium*



SECOND FLOOR



FIRST FLOOR

Reaching for the Sky

With a V-shaped roof hovering above its main spine and an angled roof over its gymnasium (foreground, photo above), the 23,000-square-foot Rogers Elementary School in Victoria, British Columbia, seems ready to take to the air. But the school's innovative design is no flight of fancy. By supporting the central roof on freestanding concrete-and-steel columns and raising it above load-bearing masonry walls, Vancouver-based Hughes Baldwin Architects was able to insert clerestory windows that bring daylight deep into the school's interior. To emphasize the school's strong ties to its community, the architects located facilities shared with the public—such as the gymnasium and a multipurpose room—closest to the street. A courtyard separates the academic portion of the 250-student school from the community facilities and lets each sector operate independently.

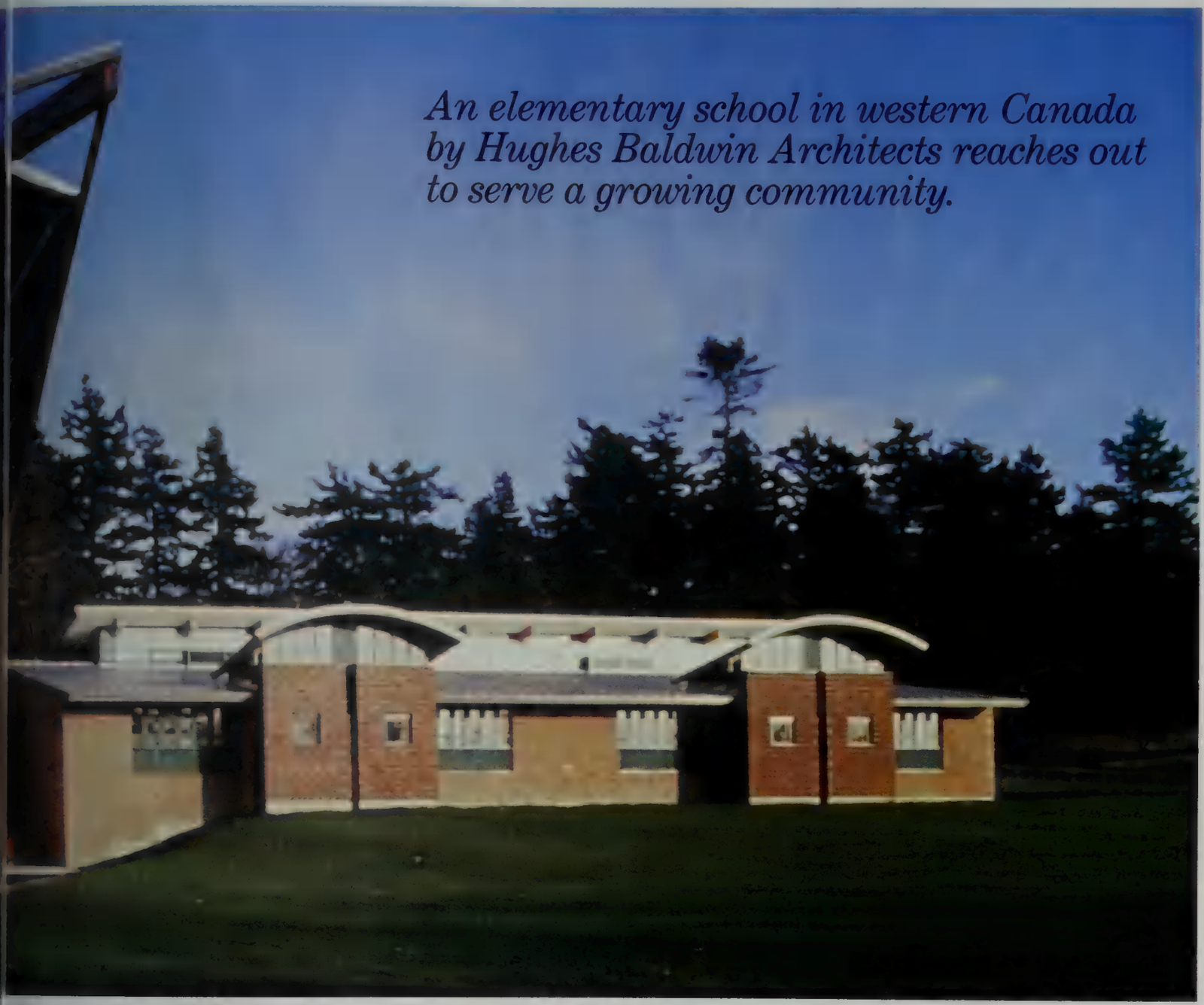
On the other side of the central spine, paired classrooms are [illegible] cores that include small quiet areas and a shared activity [illegible] arrangement that allows for team teaching. Future growth for another 200 students can be accommodated by [illegible] the main axis of the school and the classrooms on [illegible] *David A. Pearson*

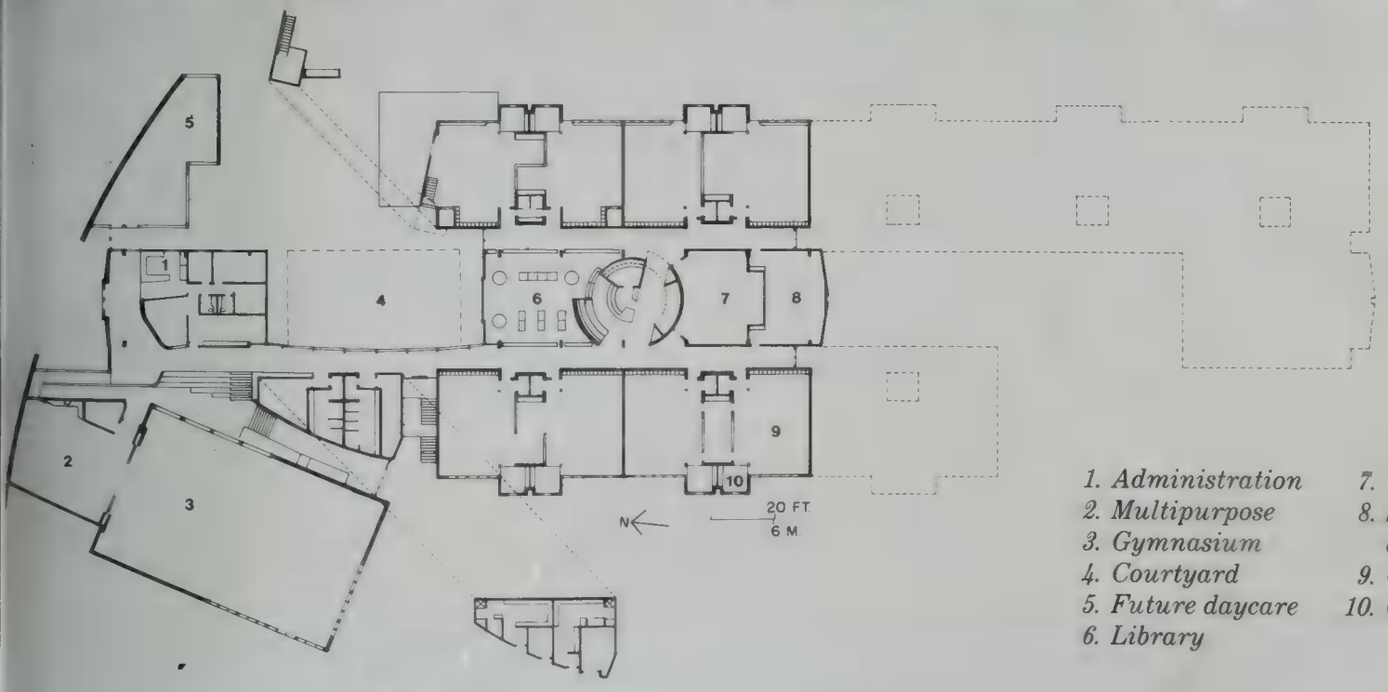
Architect: *Hughes Baldwin Architects—Roger Hughes, partner-in-charge; Karen Marler, project architect; Bruce Carscadden, Marc Boutin, design team*
Engineers: *C. Y. Loh Associates (structural); Keen Engineering (mechanical); D. Valeri & Associates (electrical)*
Landscape Architect: *Christopher Phillip*



© Bob Matheson photos

An elementary school in western Canada by Hughes Baldwin Architects reaches out to serve a growing community.





1. *Administration*
2. *Multipurpose*
3. *Gymnasium*
4. *Courtyard*
5. *Future daycare*
6. *Library*
7. *Computer lab*
8. *Special education*
9. *Classroom*
10. *Quiet area*

User Friendly



hese architects show that listening
o clients can produce a school for
se by the whole community.



Patwin Elementary School
Davis, California
The Steinberg Group, Architect

"Our climate is paradise," says architect Robert Steinberg about Davis, the north central California town where this new kindergarten-through-grade-six school is located. Given the community's early active response to progressive environmental causes (such as solar heating in local buildings and a system of bicycle paths), the decision was not surprising to make classroom and clerestory windows operable so they could catch prevailing southerly breezes during much of the spring and fall. The students benefit by getting fresh air; less energy is expended on air conditioning, and the windows bring in daylight.

The use of passive cooling here was only one of the results of an intensive user-input design process in which The Steinberg Group attempts to get "into the mindset of the user." The technique has worked well on many projects, which have included housing for homeless persons and schools for disadvantaged learners. As Steinberg puts it: "Architects aren't the only ones who contribute to a project." And the community, students, parents, and teachers all contributed.

The firm got input from the community on facilities that parents as well as children could use. One result was the multipurpose building that faces an outdoor amphitheater on one side (photo, previous pages) and the street on the other. Here the community can come to hear concerts or play basketball indoors when "paradise" becomes a little fogged in and chilly during midwinter, even while the rest of the school is closed. Another solution answered concerns about security for the kindergarteners. A special parking lot and entry (site plan, bottom right, page 115) allow parents to drive up, park, and place their youngsters directly into a teacher's care.

Teachers instructed the architects on their preferred teaching methods, which include working with small groups in contained classrooms and combining classes in larger sessions similar to team-teaching. The teachers' belief in student interaction resulted in classroom windows that look into central triangular outdoor courtyards between each classroom cluster where several classes can be combined. Teachers also were concerned that children with learning disabilities, who in other schools would be sent to a central building for remedial training, would be stigmatized by classmates. The result is small classrooms in each cluster where special teachers can work with students inconspicuously.

It was from the students that the architects took their cues on how the eight buildings would look—like playful blocks culminating in the central library (top photo, page 114) that resembles a whale. Steinberg takes pride in the seemingly casual resulting character, despite a formal overall plan that lets people know where they are—"like a village built over time," he describes it, "holding the edge between order and childlike chaos." *Charles K. Hoyt*



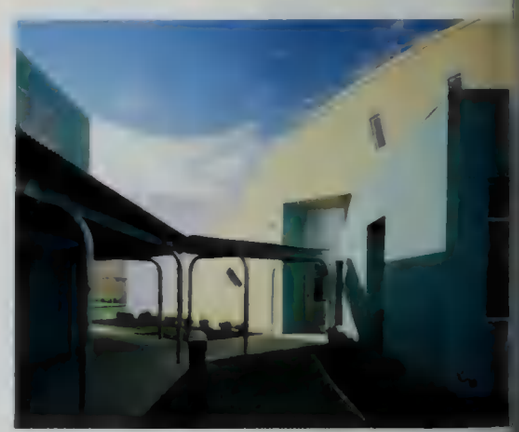
Chas McGrath photos

Up Close

Color Code. The Steinberg Group wanted to emphasize these buildings' playful building-block character by using a colorful palette to enhance their basic geometries. The community voted on three choices offered by the architects—combinations of earth tones, primary colors, and the muted scheme that the residents chose. Color was integrated into the stucco topcoat and matching paint was applied over that. "Integral color in stucco is not even," notes Robert Steinberg, "but it keeps the surface from looking unsightly when the paint chips off." He is pleased with the contrast between the painted walls and the unpainted-steel walkway covers: "The steel and painted surfaces heighten the intensity of each other." And, of course, the unpainted steel has its functional purpose as well: "No finish will stand up long under the close attentions of young children." Of course, color adds character to basic materials and surfaces, such as asphalt roofs and modest commercial-grade windows on classrooms, as well as to central design elements.

Inside, the architects have taken the opposite approach. Everything is white (see small photos, overleaf). In the classrooms, "teachers and children produce paintings and graphics that are far more colorful than anything architects can come up with," says Steinberg. "I know when I'm outmatched." In the library's main reading room, the stark effect is one that he describes as "spiritual."

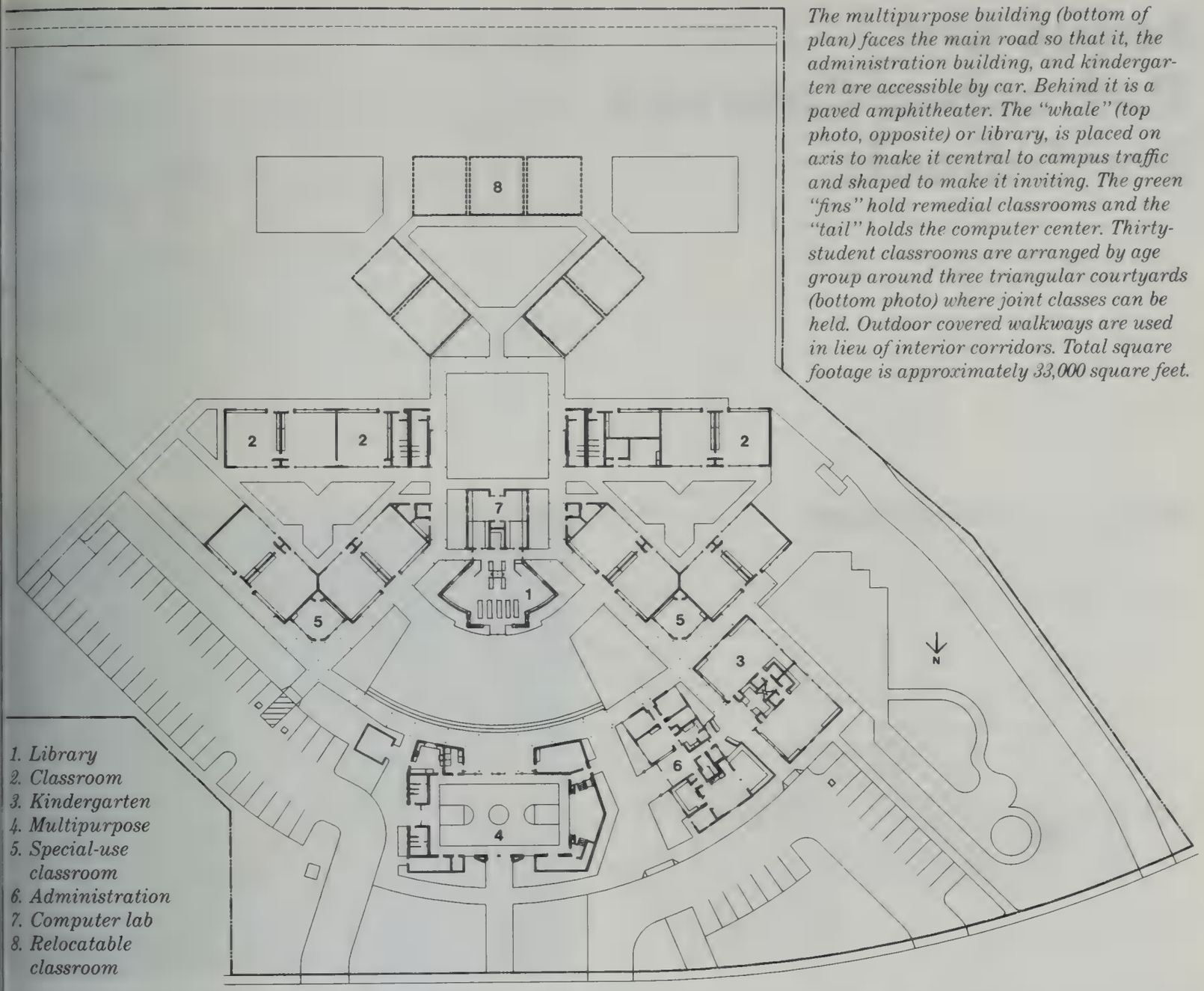
One triangle of buildings at the back of the site (far left, photo, left) is temporary construction, awaiting a decision on whether these will be made permanent or torn down as classes grow or shrink.











The multipurpose building (bottom of plan) faces the main road so that it, the administration building, and kindergarten are accessible by car. Behind it is a paved amphitheater. The "whale" (top photo, opposite) or library, is placed on axis to make it central to campus traffic and shaped to make it inviting. The green "fins" hold remedial classrooms and the "tail" holds the computer center. Thirty-student classrooms are arranged by age group around three triangular courtyards (bottom photo) where joint classes can be held. Outdoor covered walkways are used in lieu of interior corridors. Total square footage is approximately 33,000 square feet.

1. *Library*
2. *Classroom*
3. *Kindergarten*
4. *Multipurpose*
5. *Special-use classroom*
6. *Administration*
7. *Computer lab*
8. *Relocatable classroom*





Credits

Patwin Elementary School
Davis, California

Architect: *The Steinberg Group—Robert T. Steinberg, principal-in-charge; Vladimir Frank, project designer; Gregory Hepp, project manager; Jacob Sofer, Alida M. Guerrero, Lee Salin, Robert Dolton, project team*

Engineers: *Hratch Kouyoumdjian & Associates (structural); Capital Engineering Consultants (mechanical); Jack Todd, Inc. (electrical); Cunningham Engineering (civil); Raney Geotechnical (soils); Charles M. Salter Associates (acoustical)*

Consultant: *Gates & Associates (landscape)*

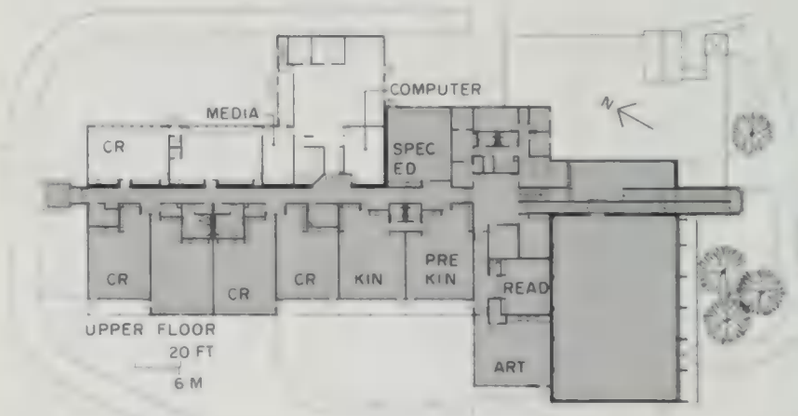
Construction manager and cost estimator: *Vanir/3DI*

Focus on: Refresher Courses For Schools

Although schools in some parts of the country face declining enrollment, those in other areas have gained so many pupils that expansion is of the essence. Of course, all school additions must be pleasant places for learning, but there are other issues that must be addressed. Urban schools, such as the Hong Lok Yuen International School in Hong Kong, the Center for Early Education in Los Angeles, and Saint Thomas's Day School in New Haven, must make the most of the available site while being appropriately scaled and in context with the neighborhood.

Truro Central School

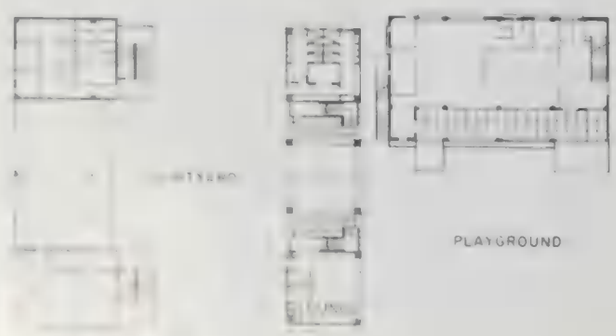
Truro, Massachusetts
HMFH Architects





Hong Lok Yuen School

New Territories, Hong Kong
Wong Chen Associates, Architect





: the Truro Central School, context and
ppropriateness issues are still at work, yet the
hool's function as a community meeting hall
fluenced its street-like circulation spaces. At
urray-Lasaine Elementary School, flexibility
ith an eye toward future expansion was the rule.
harles D. Linn



Elementary school serves as town square

Education is a matter of pride with the citizens of Truro, Massachusetts. Faced with the choice of busing their children to grade school in another town, or school construction, they built. HMFH Architects' scope of work included feasibility studies to help determine whether several school buildings should be remodeled, or whether a new structure should be built. The town opted to reuse only one of the existing buildings. The rest were demolished, and a new L-shaped structure added to two sides of the existing building (plan opposite). The stained, gray wooden shingles (photo opposite), trimmed in white, along with the hip roof, cupolas, and over-scaled bay and two-over-two window treatments, are in keeping with the local Cape Cod vernacular. Inside, HMFH Architects took what might have been an ordinary hallway and gave it a street-like quality, (left) with the use of tile on floors and walls, wooden pilasters and pediments around the cafeteria doors, and exterior lighting fixtures. The gymnasium, reached via the ramp at the right of the photo, and the cafeteria, are the only large meeting places in town and are in constant use. Thus when the citizens of Truro fill up this space it really does act as a "main street." *C. D. L.*

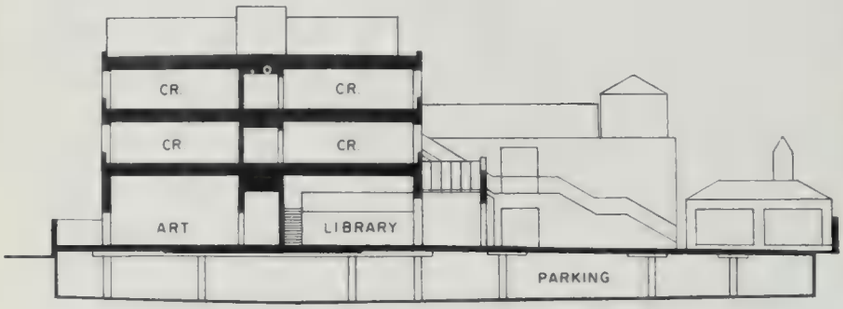


Primary in pastels

The Hong Lok Yeun International School's 6,000-square-foot new wing (photo opposite) fills in a site between a two-story kindergarten and a four-story primary school. New York-born architect Nelson Chen scaled down the stucco-finished, reinforced-concrete structure for compatibility with the surrounding residential community's, using deep frames and treehouse-like balconies to subdivide what would otherwise be plain, expansive elevations. The framed balconies also block the sun, yet give classrooms plenty of light as well as views uninterrupted by window coverings. Skylights and a sun scoop flood the stairways and an upper-level classroom with daylight. Chen pastel-color-coded services in a manner that will appeal to a child's sense of whimsy: the water tank and piping are blue, the sun scoop yellow, and fire-protection equipment is red. The school's textures of glass and stucco, pastels, and deceptively complex patterns of planes and grids make attending the school a rich experience for a child. *C. D. L.*

Center for Early Education

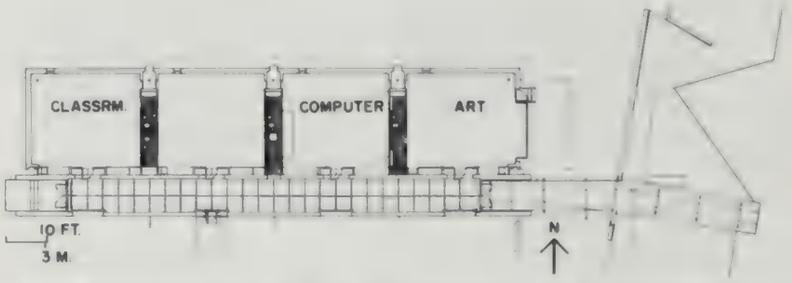
Los Angeles, California
Goldman Firth Boccato, Architect





Murray-Lasaine Elementary School

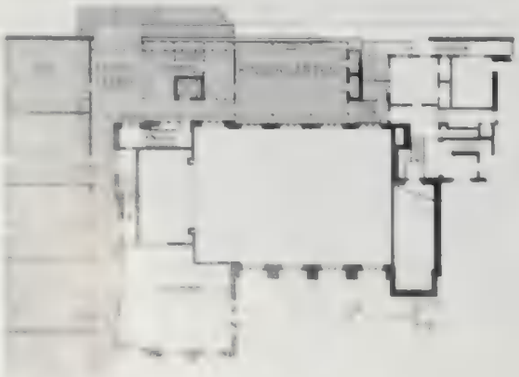
James Island, South Carolina
Ray Huff, Architect





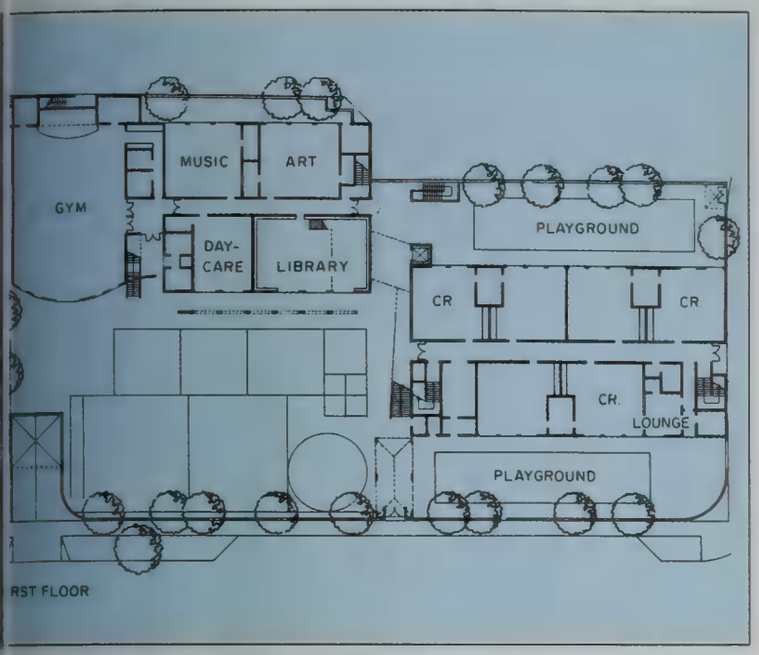
Saint Thomas's Day School

New Haven, Connecticut
Office of Michael Rosenfield, Architect





Paul Ferrigno photos



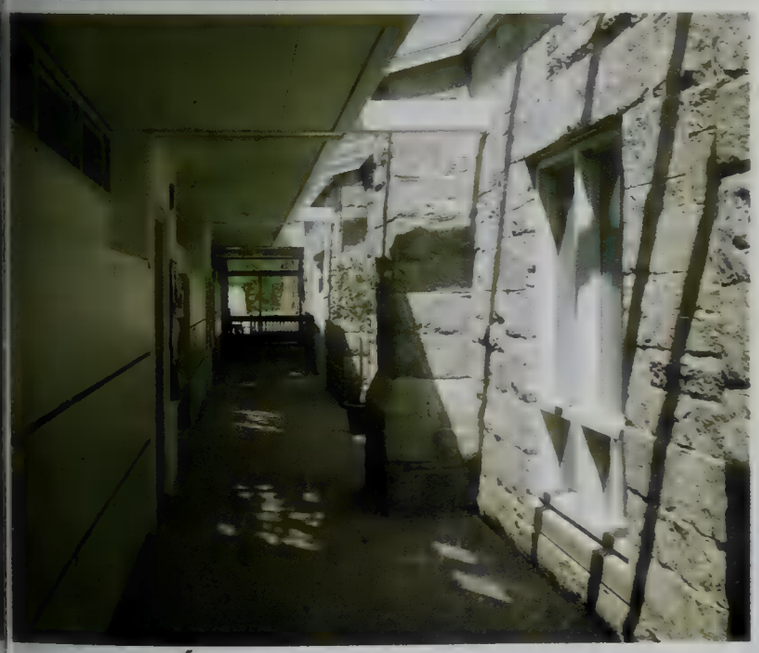
Rooftop playgrounds get top billing

The Center for Early Education occupies a tight 40,175-square-foot site (about one acre) in west Los Angeles. The learning-laboratory complex serves 475 students, as well as being a fully-accredited teachers college. Smart budgeting of $3.5 million bought a new 25,000-square-foot classroom building, renovation of an existing 16,000-square-foot brick building, and an 88-car parking garage. Two 8,000-square-foot rooftop play areas were added to three existing playgrounds, allowing almost 100 percent of the site's gross area to be used for recreational purposes. The new play areas double as outdoor classrooms for astronomy, hydroponics, and urban geography. The new buildings' outdoor pavilions (section opposite), colors, and stepped massing help establish a scale that children find friendly. Some of the building forms are symbolic: a bus-stop shelter built of red brick invokes the image of a traditional schoolhouse, while a clocktower anchors a multi-level outdoor streetscape connecting classroom and playground levels. *C. D. L.*



A four-classroom addition poised for future expansion

This modest addition to a 1960s structure, itself a massive addition to a 1920s building, is the part of the school most visible from the street, so Ray Huff expressed the addition's components. He placed toilet rooms and other services in a recessed zone separating the classrooms (plan opposite). The corridor, visually pulled away from the classrooms, is set between parallel cementitious synthetic stucco-on-block walls (photo opposite). Site conditions precluded a straight-line addition to the earlier structure, so the inverted curve of Huff's metal canopy sweeps up, covering a skewed junction to a canopy leading to the main building. In Charleston's hot, humid climate, air conditioning is standard these days, but windows, seen mainly as inconvenient heat-gain devices and an invitation to vandals, are only grudgingly tolerated. With butt glazing, Huff floated the roof of the addition over the concrete-brick walls, and further animated the rooms with glass-block panels and slim vertical lights which face the recesses between each classroom (left). The corridor is single-loaded, but large cutouts in the exposed stucco wall (on wall not visible in photos) will one day permit easy placement of doors and mechanical ductwork for added classrooms. *J. S. R.*



Addition keeps low profile

Saint Thomas's Day School's pre-kindergarten through sixth grade classes had occupied a converted parish house for over 30 years. The school commissioned the Office of Michael Rosenfield to design an addition and prepare plans for other necessary renovation work in the late 1980s, when the student population finally outgrew existing facilities. Rosenfield's design had to respond not only to the site conditions and the expansion program, but also to neighbors' concerns that the addition, located on a prominent neighborhood corner, maintain a residential scale. The resulting single-story, L-shaped classroom wing and administration wing (plan opposite) wraps around the back and sides of the parish house. A flat roof and matching granite walls, as well as judiciously selected plant materials, help diminish the bulk at the remaining street side (photo opposite). The addition is knit to the parish house by a skylit corridor. Clerestories admit daylight to classrooms from the corridor and from a curtain wall on the exterior elevations. Improvements for disabled access were also made during the expansion. *C. D. L.*



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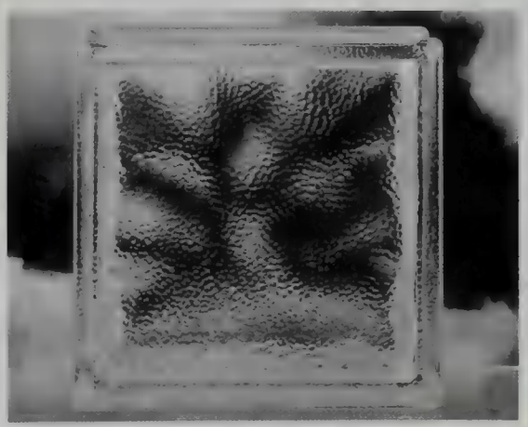
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New Products





210. Children's suite
Made of maple-faced plywood set on solid legs, Christopher Murray's Leaf chairs and tables (above) are sturdy enough for kindergarten use. Backs come in five "species": acorn, clover, poplar, currant, and ginko, in a choice of bright stain colors. Seat height can be ordered 10-, 12-, or 14-in. high. Harry Loucks designed the magnetic sand table (top) for pediatric waiting rooms. Magnets move toy cars and trucks through sand enclosed in a vacuformed plastic tray. The Children's Furniture Co., Baltimore.

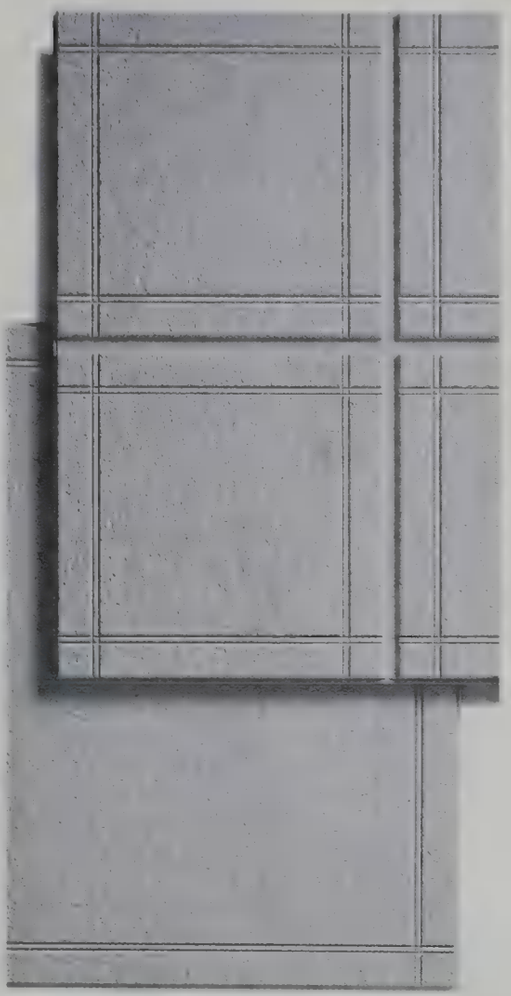


211. Dual-pattern glass block
Cirrus, the newest of eight block designs, combines a wave-patterned interior face with a privacy-enhancing stippled exterior. At 3 1/8-in. thick, it offers good light transmission. Pittsburgh Corning, Pittsburgh. ■

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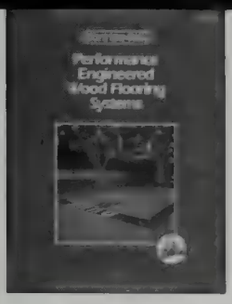
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00. Solid-vinyl tile
32-page catalog covers resilient oring for educational, healthcare, d retail applications, including a w line of composition tile as well solid-color and patterned vinyl d slip-resistant rubber flooring. ustrates an expanded color range. PI, Sheboygan, Wis.



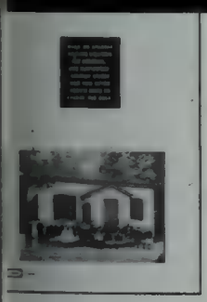
401. Sports flooring
Architectural guides are offered on an international line of athletic surfaces for both indoors and out. Special floors include wood-plank and parquet systems for specific use such as ballet, aerobics, or basketball; general-purpose synthetic surfaces; and ElastiTrac running tracks. Connor.AGA, Balsam Corp., Amasa, Mich.



02. Demanding-use plumbing
admax stainless-steel fixtures and cessories are said to withstand the use possible in unsupervised washoms. A 12-page catalog covers vatories, water closets, sinks, founins, shelves, and dispensers; a chart splays color-glaze options. Bradley orp., Menomonee Falls, Wis.



403. Playground equipment
A 108-page catalog features products for playgrounds, parks, recreation, fitness, and sports, including items made of recycled plastics. Illustrated specifications demonstrate ground-space requirements and fall-zone dimensions. Quality Industries, Hillsdale, Mich.



04. Lighting for schools
capabilities brochure describes nergy-efficient equipment for any lucational-lighting requirement, om classrooms to parking lots and hletic fields. Using a single source r lighting is said to reduce costs, pedite purchasing, and simplify aintenance. Hubbell Lighting, hristiansburg, Va.



405. Acoustical products
Decorative and durable wall and ceiling materials, such as lay-in or full-span corridor panels, are illustrated as used in recent school, recreational, and institutional projects. Finish options include fabric wrap, nubby fiberglass, and paint. Tectum, Inc., Newark, Ohio.
Continued on page 125

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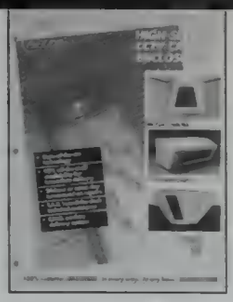
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06. Water coolers
new 28-page Oasis catalog highghts pressure water coolers, ountains, and accessories. Format aces on-site color photos, dimenonal data, and design criteria on ie same page for easier use by chitects and specifiers. EBCO anufacturing Co., Columbus, Ohio.



407. Security equipment
CCTV cameras and other surveillance components have been constructed with protective housings for use in vandal-prone and remote environments such as stairwells and ATM enclosures. A six-page data sheet illustrates housings and gives dimensions; CAD specification help is offered. PELCO, Clovis, Calif.



08. [illegible] ceilings
handsome brochure illustrates ilings and wall treatments suitable r the specific needs of every school ea, from high-humidity locker oms and must-be-scrubbed cafeteas to fire-rated corridors. Charts atch areas and requirements with ggested acoustic products. rmstrong World Industries, Inc., ancaster, Pa.



409. Radiant floor heating
Its low-draft, low-maintenance performance is said to make in-floor radiant heating particularly effective in school settings. A technical flyer describes new high-capacity systems suitable for educational, institutional, and factory applications. Gyp-Crete Corp., Hamel, Minn.



10. Wall base
Uni-Color is a system for color-coordinating wall base and flooring ccessories across four rubber and inyl product lines. A specification-ssistance program supplies samples f all colors available in both matte nd glossy finishes. Mercer Products o., Inc. Eustis, Fla.

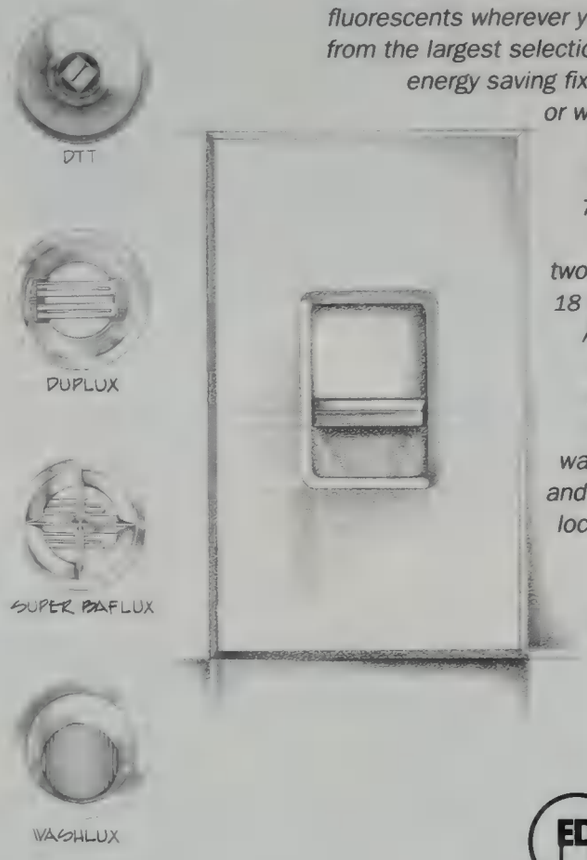


411. Safety flooring/stair treads
An architectural catalog covers key points in floor and stair safety, including products that meet visual impairment and fire-safety standards. Offered in marbleized or solid colors, rubber flooring and treads come in low- and high-profile disc, square, and diamond patterns. Musson Rubber Co., Akron, Ohio.
Continued on page 127

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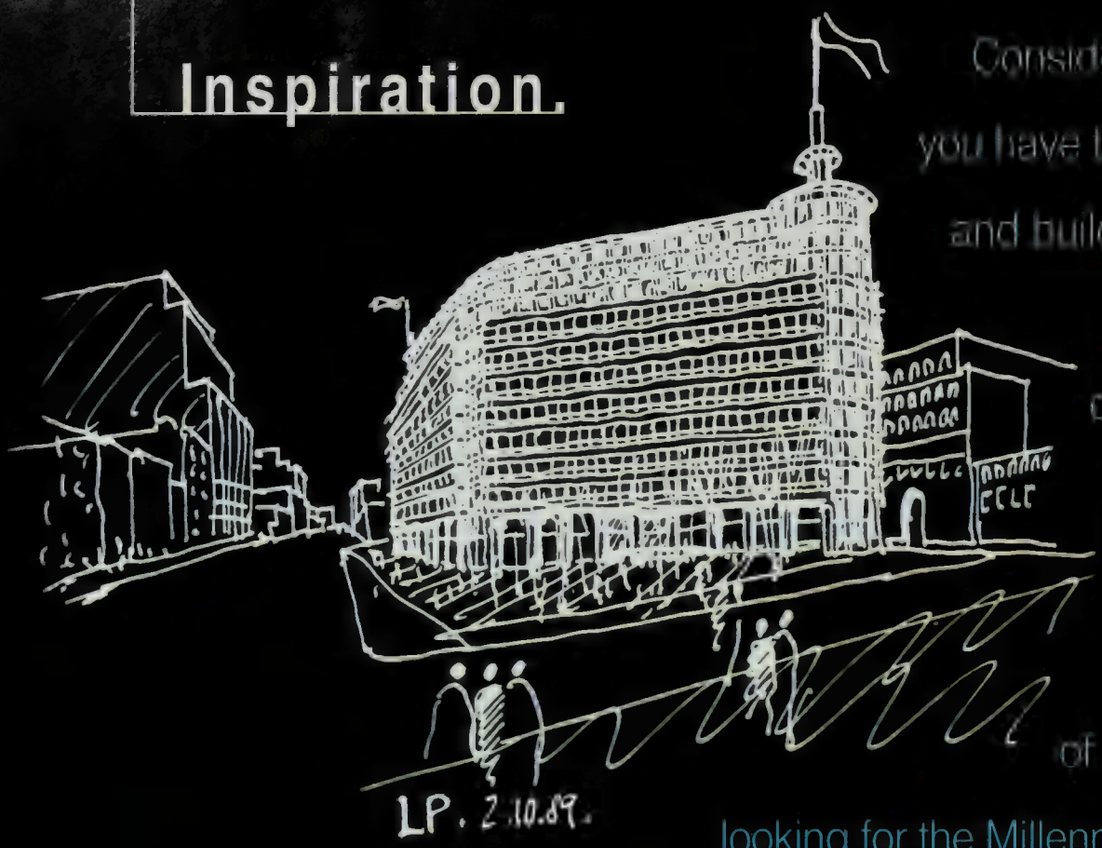
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Circle 34 on inquiry card

Inspiration.



Considering the 10,001 details you have to worry about in designing and building a project, the least we can do is simplify part of the process. If you're looking for a wall material that will both inspire you and withstand the tests of time and nature, you're looking for the Millennium Collection from Stark Ceramics. For complete details, send for your free Millennium portfolio and information guide and see how several companies like Murphy/Jahn have taken projects from sketches to structures with Stark's Millennium Collection.

Stark, P.O. Box 8880, Canton, OH 44711

Execution.



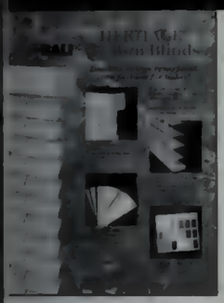




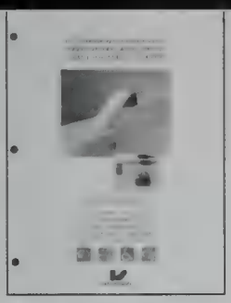
412. Wall protection
A 24-page color catalog explains the design potential and ergonomic principles incorporated in Pro-Tek handrails. It also illustrates the full rail and impact-protection line, including specialty wall and door protectors. Products are Class I fire rated and meet ADA standards. Pawling Corp., Wassaic, N. Y.



413. Music-practice rooms
Modular sound-isolation rooms are supplied in sizes suitable for solo, ensemble, band, and other school music program requirements. Installed on site, units save space, and are said to offer a superior level of acoustic control over built-in practice rooms. Risers, band shells, and instrument-storage lockers also offered. Wenger Corp., Owatonna, Minn.



414. Classic school blinds
Catalog inserts detail window coverings long used in educational settings: 2-in. horizontal aluminum blinds, and roller shades of fire-retardant vinyl, fiberglass, and woven cotton. Swatch cards sample color choices for tapes and slats, as well as FR verticals made of perforated PVC. Springs Window Fashions Div., Middleton, Wis.



415. Abuse-resistant washrooms
Washfountains and lavatories are operated by an electronic passive-infrared detection system said to permit hands-off use for over five years on a single battery. Described as insensitive to ambient influences, automatic stainless-steel faucets save water and energy. Intersan Mfg. Co., Phoenix.



416. Classroom lighting
A brochure on Percepta II luminaires demonstrates how the fixtures reduce veiling luminance and increase useful, comfortable light. Illustrations depict several classroom-lighting applications, using totally enclosed as well as surface-, pendant-, and coffer-mount fixtures. Holophane Co., Inc., Newark, Ohio.

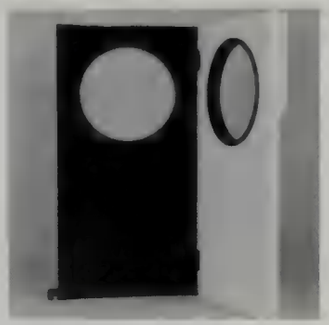


417. Drinking fountains
A colorful 20-page catalog shows fountains and coolers in finishes that meet very different design and performance requirements, from reinforced fiberglass and exposed aggregate to satin-finish stainless steel, colored enamels, and polished brass. Haws Drinking Faucet Co., Berkeley, Calif. ■

For more information, circle item numbers on Reader Service Cards.

ROUND ALUMINIUM WINDOW









baudisson concept window corp.
979 bennington st. • east boston, ma 02128
telephone: (617) 569-2927 • fax: (617) 569-3381

Circle 38 on inquiry card



Saflex®
Plastic Interlayer
By Monsanto

Circle 34 on inquiry card

Birdair. Covering Sports Around The World.

Striving for architectural excellence is no kid's game. It's serious team play. And what contest could be tougher than creating a major sports arena? Birdair knows that keeping the lead in tensioned membrane sports domes and structures means fighting for goals through technical innovation and manufacturing excellence. Extra effort wins. The World Cup Championship, World Series Baseball, The Superbowl, NCAA Final Four Basketball, Pan American and Asian Games have all appeared in world class sports facilities covered by Birdair.

Rome's Olympic Stadium is covered with a 50,000 sq. meter Birdair shade roof dramatically extending 55 meters from an externally supported structure. St. Petersburg, Florida's cable supported Birdair dome is the second of its type in the U.S. and the largest of its design in the world (34,385 sq. meters of membrane are tensioned to form a 210 meter clear span cable dome weighing less than 30 kilograms per sq. meter). Ravenna's Flammini Group project is configured for basketball and tennis. Its 2,920 sq. meter Birdair dome is supported with an exposed steel pipe lattice framework in a four sided cylindrical shape.

These are just a few examples of how the Birdair team can meet the challenge of your next tensioned membrane project with skills that compete with anyone in the field. Contact us for additional information. We will send you a free brochure featuring eighteen of our most recent and exciting installations.







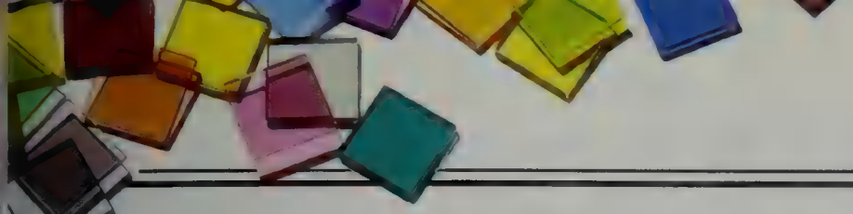
BIRDAIR

...5 Lawrence Bell Drive
...w York 14221 USA
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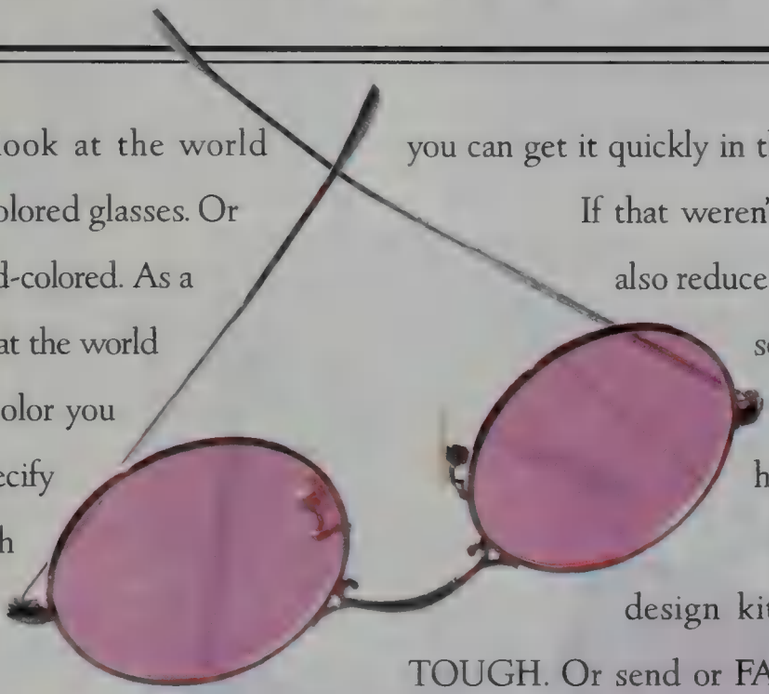
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...Architect Hellmuth,
...Obata & KAMA Bottom
...General Contractor
...Fabric Technico

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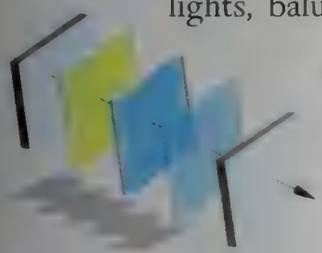
WE'RE CHANGING THE WAY YOU'LL LOOK AT THE WORLD OF COLORED GLASS.



You'll look at the world through rose-colored glasses. Or peach-colored. Or emerald-colored. As a matter of fact, you'll look at the world through just about any color you can imagine when you specify laminated glass made with the Saflex OptiColor® System by Monsanto.



Choose from hundreds of transparent and translucent colors for curtain walls, spandrels, skylights, balustrades, elevator enclosures, atriums and more.



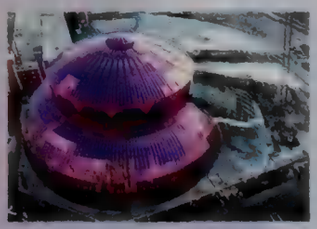
One to four interlayers are combined to create hundreds of color options.

Since the glass is laminated, it can meet virtually any building code for safety, sloped and overhead applications. It goes where ordinary glass can't.

You don't have to buy a huge volume to make it economically feasible, so you can use it for small projects as well as big ones. You don't have to allow for a ridiculous lead time. And when you need replacement glass, you can get it quickly in the exact color you need.

If that weren't enough, the interlayer also reduces light transmittance and solar heat gain. It provides added security. And it helps control noise.

To receive your free design kit, call us at 1-800-24-TOUGH. Or send or FAX the coupon to Dept. 204, 800 N. Lindbergh Blvd., St. Louis, MO 63167. FAX 314-694-7021.



The new Circus Circus Grand Slam Canyon in Las Vegas.

Once you see the Saflex OptiColor system, the whole world of glass will look a whole lot rosier.

Please send me the free design kit for the Saflex OptiColor system.

Name_____

Title_____

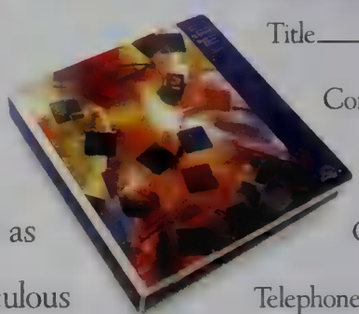
Company_____

Address_____

City_____ State_____ Zip_____

Telephone_____

MONA-0004 AR



Saflex® Plastic Interlayer By Monsanto

©Monsanto Company, 1993 ®Registered trademark of Monsanto

Circle 34 on inquiry card

Boston *continued from page 29*

draft report came out in May, with a final document late June. In some ways the task force was bold. It simply erased the proposed park, the joint creation of Cobb and the landscape firms of Hanna-Olin and Carol Johnson. The park had been a rigorous exercise in geometry, a kind of projection of the building itself. Working with the original designers, especially Laurie Olin, the task force changed it into a gentle, wandering English landscape garden that became a foil for the architecture. The task force also established the principle that the water's edge must not be dead, but alive with docks and boats.

In other ways the task force was timid. It failed to make any real dent on the building itself, despite what it perceived as problems. The problems included a rather tortuous public route through the building from the city side to the water side, a route much less generous than its model, the interior gallery of the Royal Courts in London. Other problems were the lack of retail frontage along the major adjacent street and an inconspicuous and inconvenient public entrance on the water side. Such issues were mitigated rather than truly solved. Helpful suggestions were made, however, for Cobb's already generous public hallways, including the appointment of a kind of "social director" to create activities for them.

At the eleventh hour, yet another vigilante galloped onto the scene. The Boston Chamber of Commerce, prodded by the owners of Rowes Wharf—a waterfront complex that will face the courthouse across a narrow band of water—hired four prominent local urban designers, Gary Hack, William Porter, Alex Krieger, and Anthony diMambro, to think not so much about the courthouse as about its future urban context. Like the Yuppie cartoon woman who forgot to have children, the city's own planners neglected to lay out a street plan for the large new neighborhood that will eventually surround the courthouse. The four designers made a number of informal recommendations, the strongest being that a historic bridge, slated for demolition, instead be kept open as a pedestrian route from the downtown to the courthouse. Saving the bridge was a hope often voiced before, but never by anyone with comparable clout.

Looking back on all this happy democracy, one feels some hope, but also some depression—depression that after three decades of intense public participation in Boston, the sponsors of the courthouse were slow to realize they were going to have to get the community invested in the design process rather than merely its review. Says Woodlock: "We didn't reach out to the community enough in the early stage." On the other hand, he faults the community for treating a civic building as a fund of public benefits. "Single-interest groups each want a piece of it. They think they win by how much they get."

The next step—after all the proposed improvements are agreed on—is to appoint a committee to go to Washington to find a way to fund them. Most are not in the GSA budget, nor are they likely to be. In his paper on courthouses, Woodlock quoted Oliver Wendell Holmes, Jr., to the effect that "the law is the government of the living by the dead." So too, he might well have added, is architecture. And the rest of Holmes's quote is just as applicable to architecture: "The past gives us our vocabulary and fixes the limits of our imagination; we cannot get away from it . . . But the present has a right to govern itself so far as it can, and it ought always to be remembered that historic continuity with the past is not a duty, it is only necessity." ■



Product Literature Showcase

To Advertise: Call 1-800-544-7929
Fax: 212-512-2074

HAC Water Cooler In Room Setting



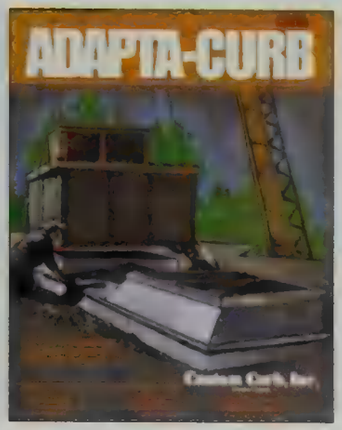
The Halsey Taylor HAC Barrier-Free Water Cooler **meets all ADA requirements** and has **no lead-bearing components** in the water system, making it ideal for new and renovated educational facilities. Features an attractive contemporary design and a standard platinum vinyl finish. Optional designer finishes available.

Halsey Taylor ... Satisfying Thirsts Since 1912.

Halsey Taylor

Circle 41 on Inquiry card

Adapta-Curb

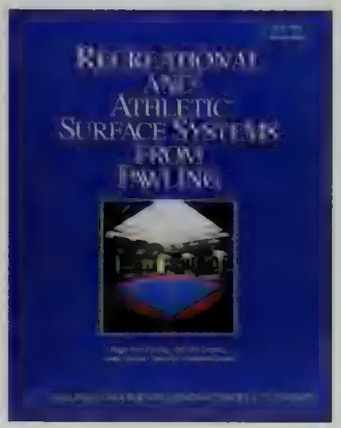


Informative color brochure illustrates the many configurations and options available with Adapta-Curb System that allows easy addition or replacement of rooftop equipment without disturbing the roof. It's designed for retrofit as well as new construction applications. The brochure outlines features & methods possible for easy addition or replacement of HVAC units & other rooftop equipment. 1-800-251-3001

Custom Curb, Inc.

Circle 42 on Inquiry card

Athletic Flooring

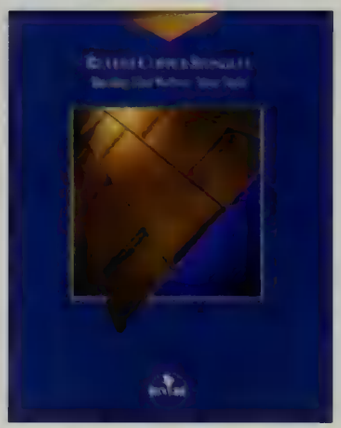


Full color catalog features photos, diagrams and specifications for many styles of specialty tile and carpet flooring including: Pawling's Inter-Lok® tile floor systems ideally suited for club, school and college sports and recreation facilities including weight rooms, court floors, work out areas, aerobic floors, exercise equipment areas, and wet areas (showers, saunas, pools).

Pawling Corporation

Circle 43 on Inquiry card

Revere Copper Shingles

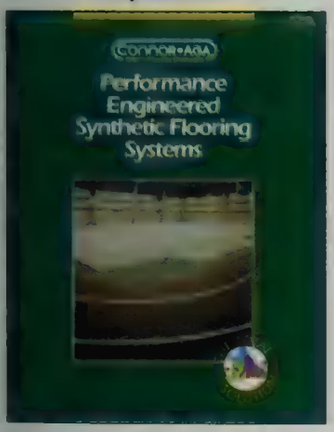


Revere Copper Shingles are quicker and easier to install than ordinary asphalt shingles. There are no special skills required and no special tools. Because Revere shingles are manufactured from solid copper, not a foil laminate, they will likely last as long as the building they protect. To learn more about our copper shingles, or any of our other copper roofing products, call us toll-free at (800) 448-1776.

Revere Copper Products

Circle 44 on Inquiry card

Synthetic Flooring Systems

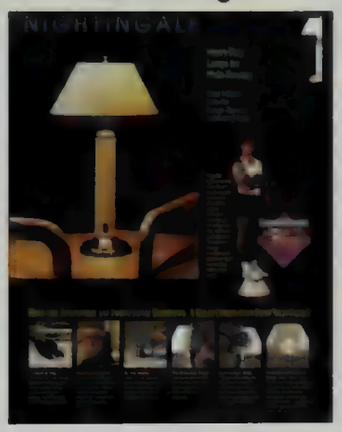


As part of the worldwide Balsam Family, Connor·AGA is the premier manufacturer of environmentally safe wood and synthetic sports flooring systems throughout the U.S. New, innovative and performance driven synthetic systems are available for virtually every educational and sports application. For catalogs and more information, call: 800-833-7144.

Connor •AGA

Circle 45 on Inquiry card

New Custom Lamp For Your Lounge



New lounge lamp is ideal for the educational environment. Heavy-duty, tamper-resistant construction provides security and low-cost maintenance while handsome Brass'n Color® design compliments a variety of interiors. Plus you can Perma-Mount™ to any end table to prevent theft. Available in 7 design colors. UL and CSA listed. Free 30-day trial sample.

Adjustable Fixture Co.

Circle 46 on Inquiry card

Floor and Stair Safety



Learn more about VI (Visually Impaired), Fire Safety & other rubber floor and stair tread systems featuring marbleized or plain, raised and surface designs in new popular colors. Also included is the latest entry flooring such as Disco, Low Disc, Square, Diamond, Fluff Cord and Traffic Tiles along with colorful illustrations & helpful specifications. P.O. Box 7038, Akron, OH 44306. Call: 216-773-7651

Musson Rubber Co.

Circle 47 on Inquiry card

Advanced Training System



Tactics PLUS™, Advanced Training System is a versatile, space saving, modular system to help train , demonstrate, educate, inform & much more - all to increase productivity & efficiency. The 2 level wall mounted track allows interchangeable components to be arranged in any combination. Porcelain writing surfaces, fabric tackboards, projection screens, flip charts, conference centers & shelving bi-pass one another nearly doubling the capacity of your visual presentations. Call: 310-639-0390

Peter Pepper Products

Circle 48 on Inquiry card

Product Literature Showcase

Acoustical Glazing Panel Integrated Blinds



Custom designed Vision Control consists of pivoting louvers, manually operated or motorized, Hermetically sealed between glass of various shapes and types. Dust-free, cord-free, Maintenance free. Provides privacy, hygiene, control of light & sound. Ideally suited for sloped glazing, interior partitions, windows and doors in classrooms, laboratories, conference and computer rooms, libraries & auditoriums. Remote control available.

Unicel, Inc.

Circle 49 on Inquiry card

PLASTRGLAS Glass Fiber Reinforced Gypsum



Innovative designs are made simply, economically and easy to install with PLASTRGLAS Glass Fiber Reinforced Gypsum. A complete line of columns, domes, coffered ceilings, capitals, and light shelves are offered and are engineered to meet the most exacting architectural specifications. Products are shipped in special crating to avoid handling problems. Architectural fabrications are available for interior as well as exterior use. Call (402) 455-0652

PLASTRGLAS, Inc.

Circle 50 on Inquiry card

PowerGuard™ from Atlas Roll-lite



Atlas Roll-lite's PowerGuard back-up power supply activates your grille door or gate in the event of a power outage. It is easy to install and compatible with 1/3 and 1/2 HP, 110V motor driven operators. PowerGuard is ideal for installation in freight facilities, hospitals, and schools. PowerGuard is tested & approved by Underwriters' Laboratories, Factory Mutual, & others. P.O. Box 593949, Orlando, FL 32859-3949.

Atlas Roll-lite Door Corp.

Circle 51 on Inquiry card

Space Master International, Inc.



Extensive portable clas room & modular buildin experience has positione Space Master Buildings t creatively respond t today's Educationc Facilities Planners require ments. Capabilities include feasibility studies, site deve opment, facility desig building fabrication, construction managemer From the classic portabl classroom to state-of-the-a modular schools call 1-80 241-1126

Space Master

Circle 52 on Inquiry card

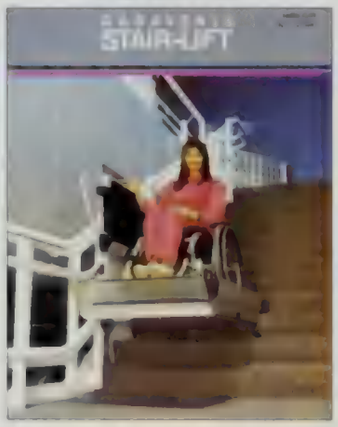
Premier-Grade Fire Sprinkler System



The DecoShield® Modular System by **Creative Systems Engineering, Inc.** Produced from high-impact, low flame [illegible] low smoke generation [illegible] engineered resin. [illegible] U. tested & listed [illegible] sprinkler [illegible] Snap-fit is [illegible]

Circle [illegible]
Engineering

Wheelchair Platform Lift

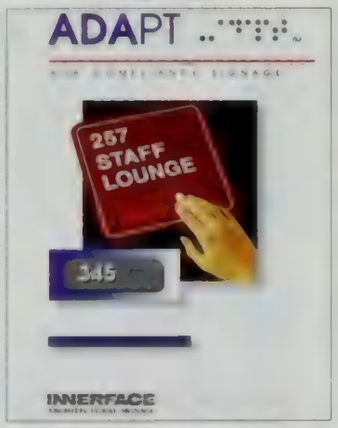


When stairs represent the barrier, the Garaventa Stair-Lift answers your client's needs, economically and in-style. With thousands installed worldwide, including the White House and Harvard, Stair-Lift is the first choice of accessibility planners like you. Call today for your information package and get a free 40-page Design and Planning Guide: 800-[illegible]-6556

Garaventa

Circle 54 on Inquiry card

ADA Compliance Signage



INNERFACE makes it easier for you to meet the new Americans With Disabilities Act (ADA) signage standards. INNERFACE offers (1) A variety of compliance signage, (2) National distribution, (3) Solid 21 year history and (4) Economical, attractive, & highly functional interior and exterior signage. INNERFACE also offers a complete line of interior and exterior signage. For free literature Please call: (800) 445-4796.

INNERFACE

Circle 55 on Inquiry card

POMEROY



Pomeroy features its line automatic closing steel fir rated hollow meta windows. UL listed.

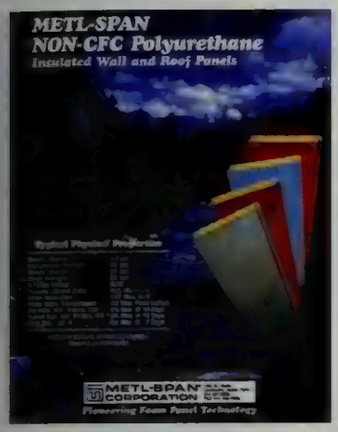
Call: 203-324-6775
or fax: 203-325-3397 fo more product information

Pomeroy, 64 Sunnysid Avenue, Box 137 Stamford, CT 06904.

Pomeroy

Circle 56 on Inquiry card

Metl-Span Building Panels

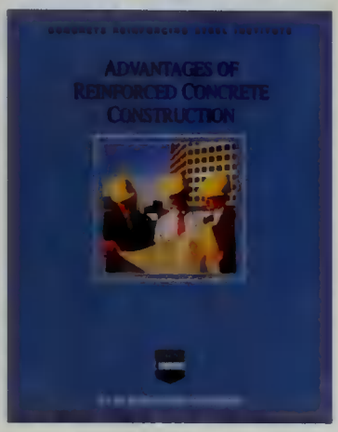


Metl-Span NON-CFC Polyurethane Insulated Building Panels. Metl-Span makes a complete line of concealed fastened insulated metal wall and roof panels. The NON-CFC polyurethane core building panels are made by a fully automated continuous line process, assuring uniform quality. Factory Mutual Class I approved panels are prepainted with Kynar 500 or siliconized polyester coatings.

METL-SPAN Corp.

Circle 57 on Inquiry card

Concrete Construction for Building Owners/Developers

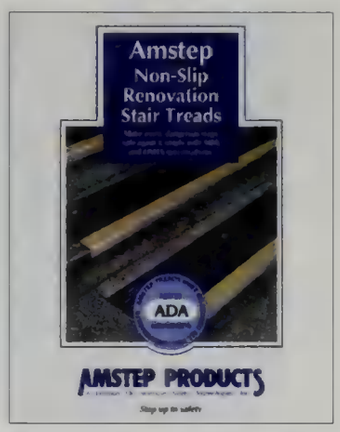


Produced by CRSI, this 4-page, 4-color brochure discusses the aesthetics and cost effectiveness of cast-in-place reinforced concrete in structures from one-story to skyscrapers. Seven areas of cost-savings are discussed. Four dramatically different structures are described to demonstrate the versatility of cast-in-place reinforced concrete.

CRSI

Circle 58 on Inquiry card

Renovation Stair Treads



Amstep renovation stair treads are the economical way to repair worn, dangerous stairways both indoors and outdoors. Easily installed over stairs of virtually any material, these long-lasting treads will provide a safe, non-slip surface which exceeds the Americans With Disabilities Act (ADA) and OSHA requirements for slip resistance. Call toll free at (800) 631-7841.

Amstep Products

Circle 59 on Inquiry card

TOUCHBAR EXIT DEVICES

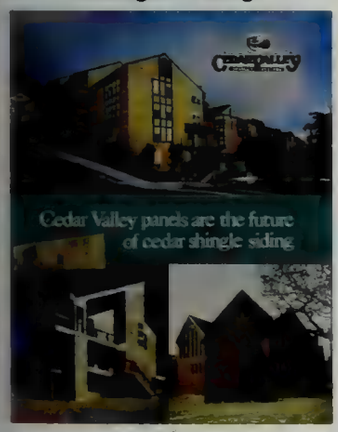


Catalog of UL listed (for life safety only or fire-rated for up to 3 hrs.) exit devices. All have matching 1-piece touchbar. Available in bright or satin brass; bright, satin or oil-rubbed bronze; bright or satin stainless steel & aluminum anodized clear, dark bronze or black. Catalog also includes choice of entry trim; pullevers, levers, knobs, thumbturns or key-only functions. Electric operation, monitoring, mullions & other accessories are shown.
Call: 310-699-0511

Adams Rite Mfg. Co.

Circle 60 on Inquiry card

The Future of Cedar Shingle Siding

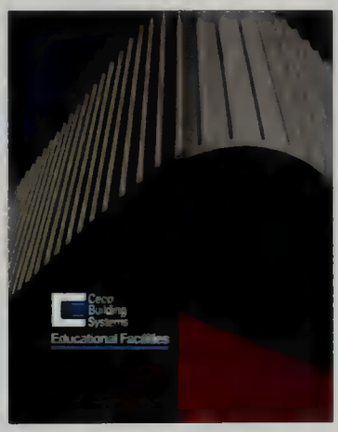


Cedar Valley's new 8-page color brochure details the panelized exterior siding system. Included are specifications, product descriptions & illustrations, finishing & application information and nearly four pages of color photos of significant projects by leading architects throughout the U.S. who used conventional & Decorator shingle panels. Cedar Valley. Call: 800-521-9523. Fax: 408-636-9035.

Cedar Valley Shingle Systems

Circle 61 on Inquiry card

Ceco Building Systems

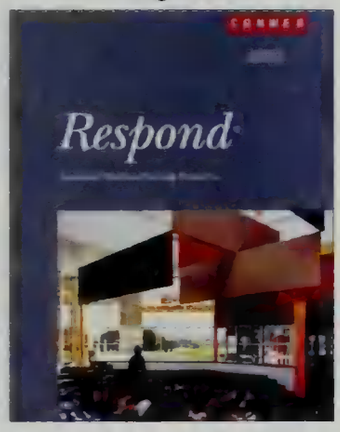


Ceco Building Systems designs and fabricates attractive, energy efficient, "function-oriented" pre-engineered metal buildings and standing seam roof systems for schools. Ceco is well known for its "non-standard **is** standard" design philosophy, allowing each project to be designed and manufactured to meet specific space and function requirements.

Ceco Building Systems

Circle 62 on Inquiry card

Acoustical Wall & Ceiling Panels



Conwed, the industry's acoustical expert for over 70 years, offers Respond, a custom acoustical products line. The innovative & coordinated array of acoustical products - wall & ceiling panels, baffles, ceiling clouds, absorbers, & diffusers - can be combined to solve any noise problem, whether it's in a music or practice room, gymnasium, cafeteria, or multi-purpose room. Conwed, 1205 Worden Ave. East, Ladysmith, WI 54848; 800-932-2383, Fax: 800-833-4798

Conwed Designscape

Circle 63 on Inquiry card

Thorocoat® 200



Designed with safety and energy efficiency in mind, Thorocoat 200 adds improved light reflectivity to non traffic-bearing surfaces in dormitories, parking areas, gymnasiums, hallways, etc. A two-man crew can cover 20,000 feet a day with a standard electric airless sprayer as easily as they would apply latex-based paint.
Call: (305) 597-8100
Fax: (305) 592-9760

Thoro System Products

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Product Literature Showcase

Total Opening Systems



Absolutely everything you need to finish an opening securely in the widest variety of materials is explained in detail in this comprehensive catalog from ESSEX Industries. SARGENT architectural hardware, CURRIES hollow metal doors and frames, GRAHAM wooden doors, MCKINNEY hinges and MCKINNEY PARKER washroom accessories come together in this comprehensive reference work from the quality single source of total opening systems. Call: 1-800-945-0536

ESSEX Industries, Inc.

Circle 65 on Inquiry card

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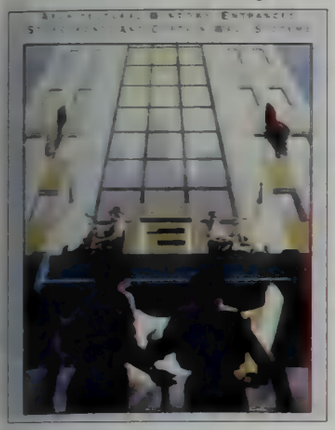


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EFCO 1993 Product Catalog



The 1993 EFCO Product Catalog is an invaluable tool for selecting Division 8 products. It features photographs of completed new construction and retrofit projects, detail drawings, product information & descriptions, specifications, performance ratings, lab test results, and options for the entire line. EFCO offers a complete line of Division 8 products plus custom designs & historical replications.
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EFCO Corp.

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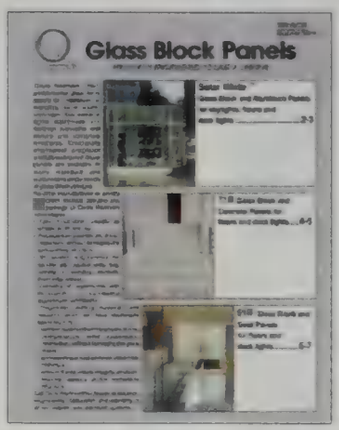


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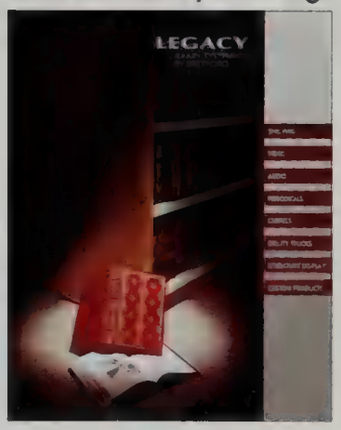


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omputers *continued from page 49*

can more images, at $15 each (minimum order $750) or rent the software for $1,250 a month (minimum six months). *Circle* **352**

aylor Made Software introduced p2Design LFV, a simplified $99 package to rn HP-GL/2 plots into DXF files, and another package, CadDesign ($395 to $595), at transforms CAD raster images into file rmats used in desktop publishing (TIFF, CX, GIF, PostScript). *Circle* **353**

racer 1.0 for AutoCAD 12 does raster-to-ector conversions. The two modules, one r text and one for graphics, are from nformation+Graphics Systems, Inc. *ircle* **354**

ost Estimating

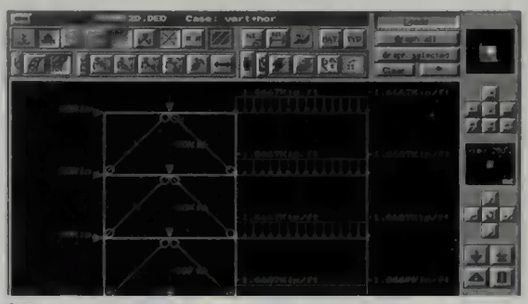
oint ventures were the order of the day. areCon Systems, Timberline Software, and orth American MICA BidFax will, by the nd of 1993, allow construction estimators to nport vendor and subcontractor records om a Timberline Precision database to upate a BidFax master database—simply by pening a menu option. *Circle* **355**

R.S. Means introduced a new Windows-based spreadsheet estimating program with preloaded data. The firm also showed a "demo kit" with estimating software from Software Shop Systems, G2, Computerized Micro Solutions, WinEstimator, and others. It costs $19.95. *Circle* **356**

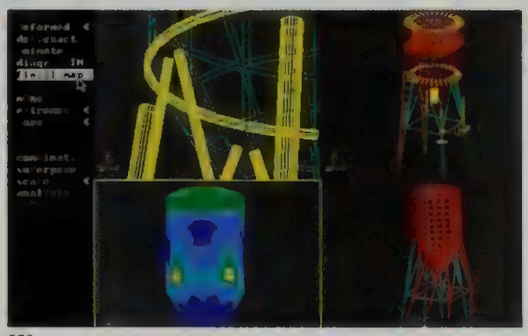
Structural Analysis

Analysis of structures too unusual to be covered by standard codes is usually the domain of a specialized engineering firm, even when there is engineering expertise in-house. Many vendors showed basic analytical software, based on the Finite Element Method, however, at low prices. They handle a limited number of nodes, and static (not dynamic) loads. But they are a cheap way to do preliminary work.

Avanesse showed its basic 150-node version for $250. Plate analysis adds $10 and dynamic analysis adds another $150. The full 1360-node version with all add-ons is under $1,100. The program was developed for the South American market; documentation is available in Spanish as well as English. *Circle* **357**



357



358

357. Avanesse structural finite-element analysis is graphical.
358. Metrosoft Robot V6 structural design.

Metrosoft has many Robot V6 finite-element analysis packages. An entry-level version, statics only, for 150 nodes, elements, loads, and combinations, is $495. *Circle* **358**



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Manufacturer Sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 84-91
Mountain Hills Junior/Senior High School
Mountain Hills, Arizona
ANTB Corporation, Architect
Sheet-metal and foamed-in-place roof: Duraguard; AARA. Steel windows: Hope's Architectural Products. Direct/indirect lighting in library: Litecontrol. Fence: Lee Fabrication. Multiple glazed glass: Labglas. Locksets: Best Lock Corp. Hinges: Lawrence. Closers: LCN. Exit devices: Corbin. Surface ceilings and VCT flooring: Armstrong. Suspended ceilings: Chicago Metallic. Paints and stains: Dunn Edwards. Ceramic tile: American Olean. Indoor lighting: Lithonia. Outdoor lighting: Kim Lighting.

Pages 92-95
Seward/Hedges Area School
Chicago
Moss Barney + Jankowski, Inc., Architect
Brick-masonry curtain wall: Glenery. Concrete: Hanley. Caulking, sealants, gaskets: Sonneborn. Built-up roofing: Manville. Skylights: Kalwall. Doors: Kewaunee. Wood windows: Eagle. Suspended system ceiling: Chicago Metallic. Paints and stains: Glidden. Tile: Dal-Tile Corp.; Metropolitan Ceramics. VCT flooring: Azrock. Indoor lighting: Lithonia.

Pages 96-103
Troy High School
Troy, Michigan
Perkins & Will, Architect
Lunch-room seating: Sico. Library casework: Nelson Mills. Skylights: Pasco. Masonry: Stone Creek; Yankee Hill; Cloud Ceramic. Quarry tile: American Olean. Ceramic tile: Dal-Tile. Glass and aluminum curtain walls, aluminum windows and doors: U. S. Aluminum. Built-up roof: Firestone Bldg. Prod. Suspended ceiling system: Armstrong. Paints and stains: Pittsburgh Paints. Floor treatment: H. B. Fuller. Carpet: Bigelow. Indoor lighting: Lightolier, Inc. Elevators: Dover.

Pages 104-107
P.S. 218, New York City
Richard Dattner Architect
Glazed block: Stark Ceramics. Fence: North Shore Metal Fabricators. Exterior flood lighting: Crouse-Hinds Lighting. Floor mosaic in rotunda: Armstrong. Built-up roofing: Manville. Metal and glass doors: Bilt-Rite. Aluminum windows: EFCO. Window guards: Kane. Tinted and laminated glass: Viracon. Paints: Pittsburgh Paints. Elevators: Westinghouse. Lifts: American Stair Glide.

Pages 108-109
Rogers Elementary School
Victoria, British Columbia, Canada
Hughes Baldwin Architects
Aluminum windows: Pinolite Glass Co. Glass: Debonair Ind.

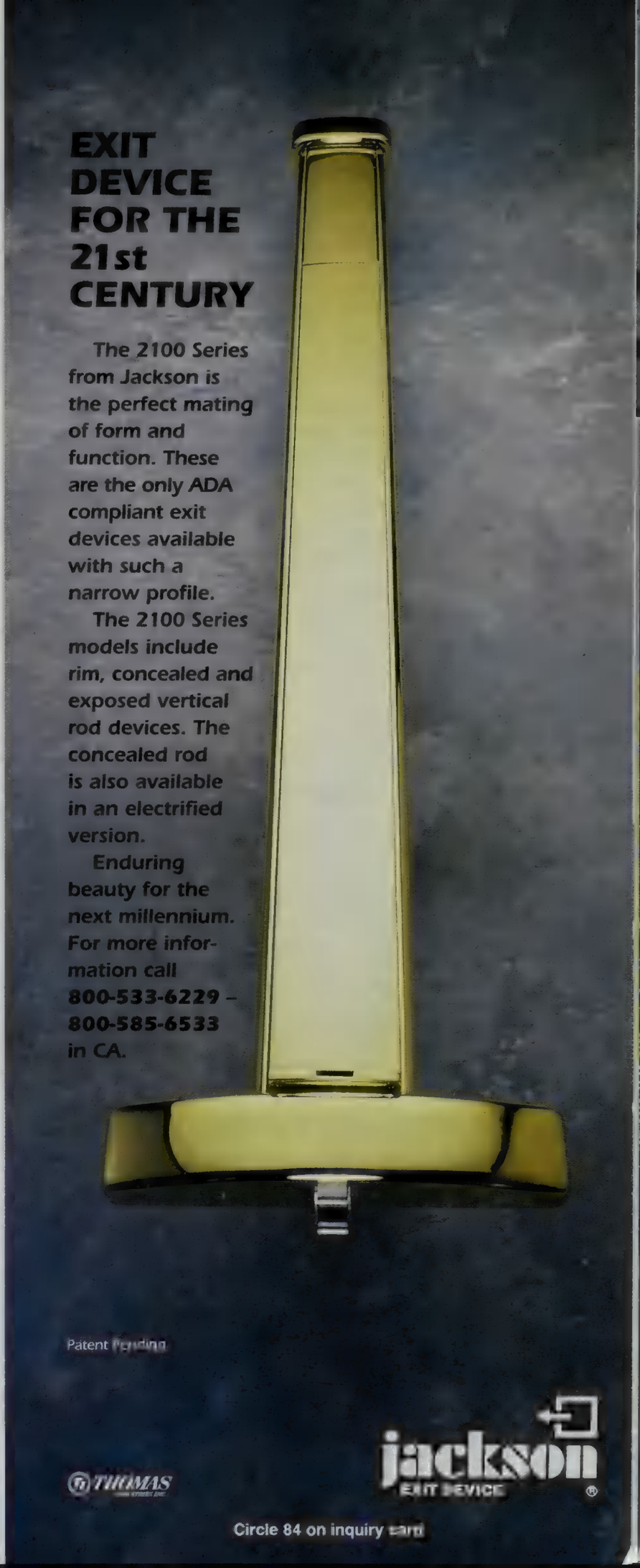
Pages 110-115
Patwin Elementary Scool
Davis, Calif.
The Steinberg Group, Architect
Portland-cement plaster-stucco colorant: California Stucco Supply. Single-ply PVC roofing: Trocal Roofing Systems. Sheet-metal roof: Valley Sheet Metal. Shingles: Elk Corp. Corrugated sheet-metal roof: Corrugated Metals, Inc. Aluminum doors: Kawneer. Special protective doors: Overly Mfgr. Co. Aluminum projecting and vertical sliding windows: Bonelli Enterprises. Tempered glass: L.O.F. Locksets: Schlage. Hinges: McKinney. Closers: Norton. Exit devices: Von Duprin. Suspended system ceiling: Chicago Metallic. Surface ceiling: Armstrong (Second Look). Chalkboards and marker boards: Greensteel. Paints and stains: Fuller-O'Brien. Vinyl-coated wallcoverings: Columbus Coated Fabrics. Air grilles: Anemostat. Recessed lighting fixtures: Columbia. Indoor lighting: Ledalite. Outdoor lighting: Sterner. Wheelchair lift: The Cheney Co.

For more information, circle item numbers on Reader Service Cards.

Corrections
The design credits for the U. S. Embassy, Amman, Jordan [RECORD, May 1993, pages. 66-73] should have included Ms. Meredith Robbins Basque, Design Team Member.

Mark Price was incorrectly described as a lobbyist [RECORD February 1993, page 31]. He is head of the Development Building Counsel in Washington, D. C., a consulting firm that helps design professionals procure federal work. He describes his role with COFPAES as "working in concert."

Amplification
The manufacturer of the curtainwall specified by Nicholas Grimshaw & Partners, Architect, for Pier 4/4a, Heathrow Airport [RECORD, June 1993, pages 108-111] has representation in the U. S.: Don Reynolds USA, Inc., St. Louis, Mo.



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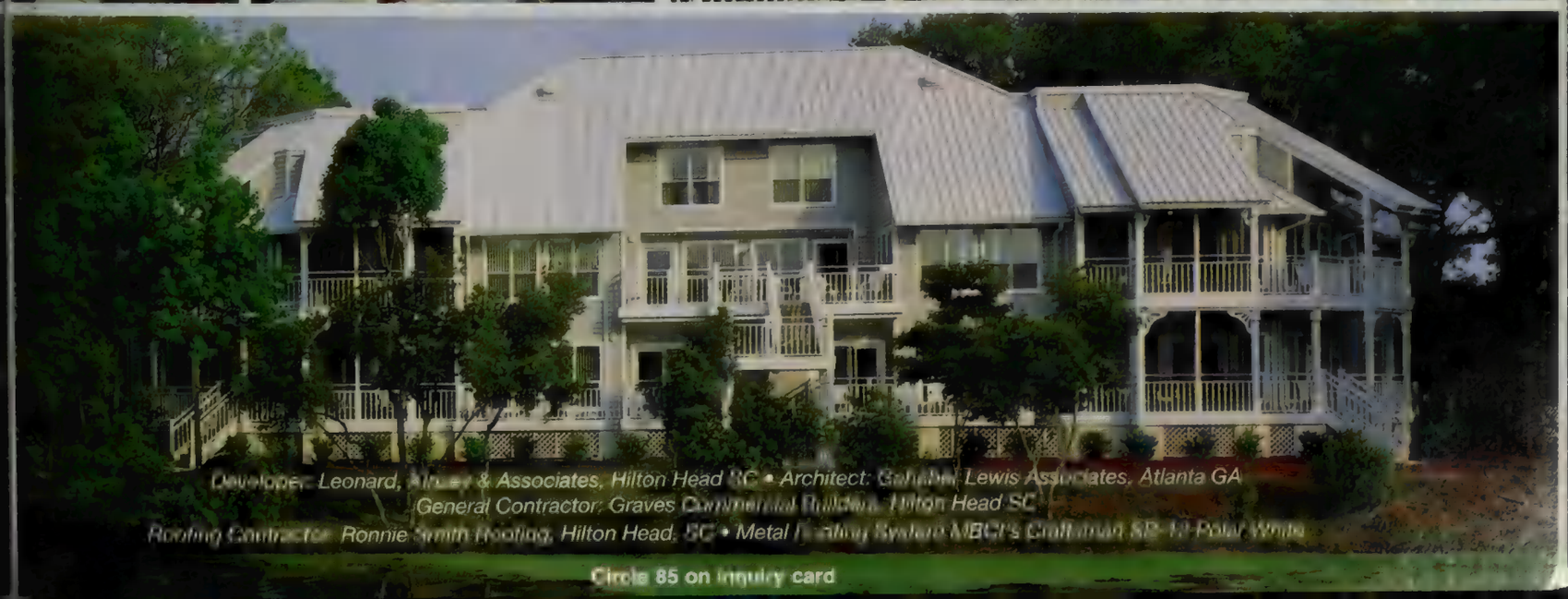
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Developer: Leonard, Kinser & Associates, Hilton Head SC • Architect: Gaither Lewis Associates, Atlanta GA
General Contractor: Graves Commercial Builders, Hilton Head SC
Roofing Contractor: Ronnie Smith Roofing, Hilton Head, SC • Metal Roofing System: MBCI's Craftsman SB-12 Polar White

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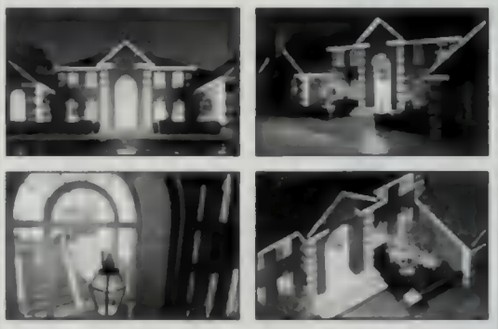
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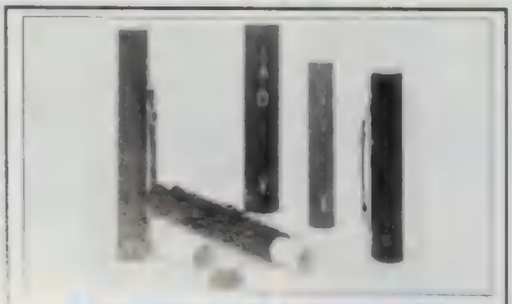
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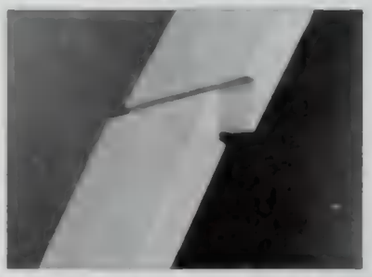
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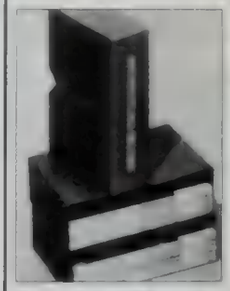
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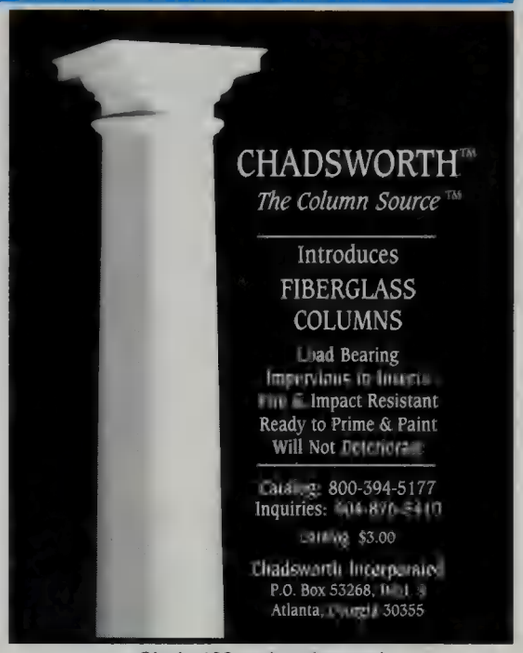


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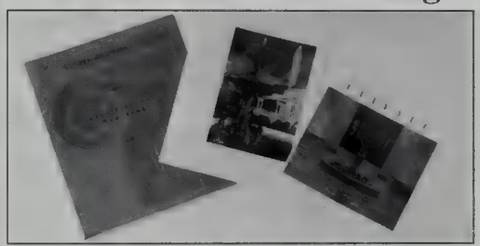
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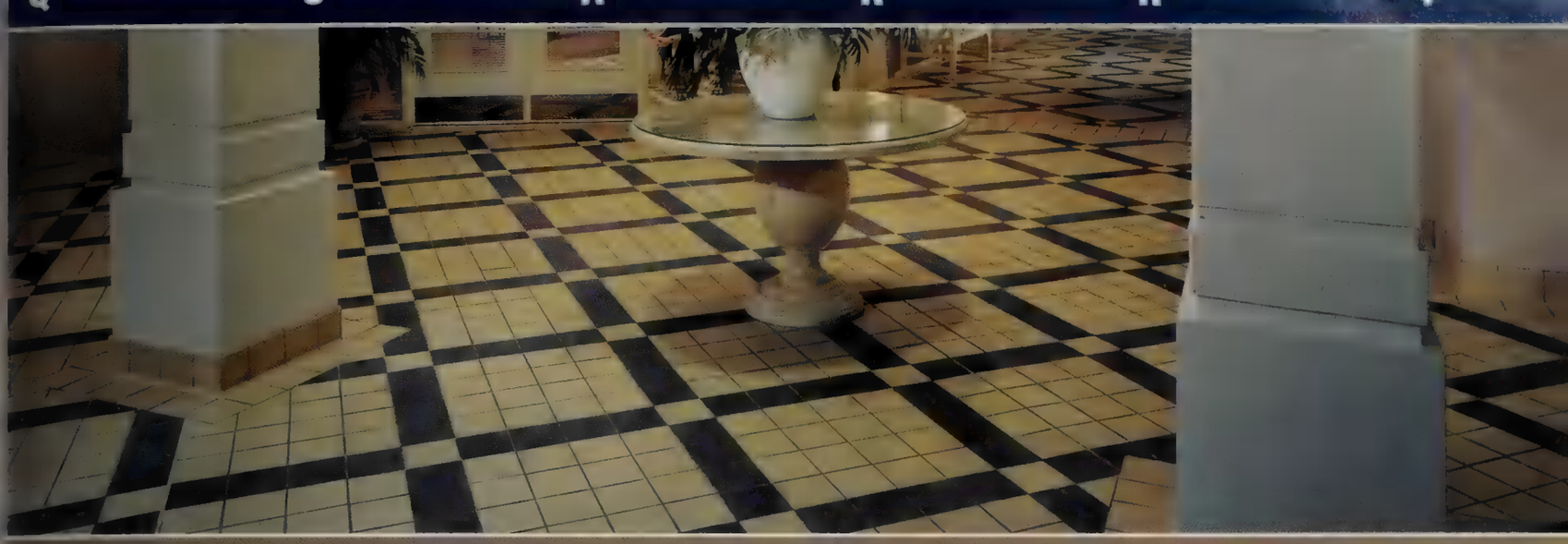
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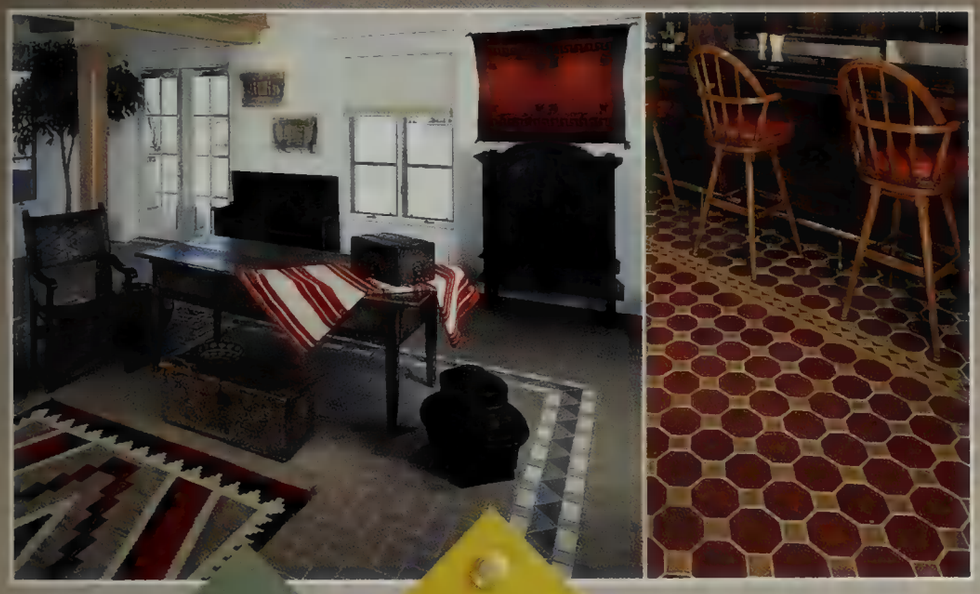
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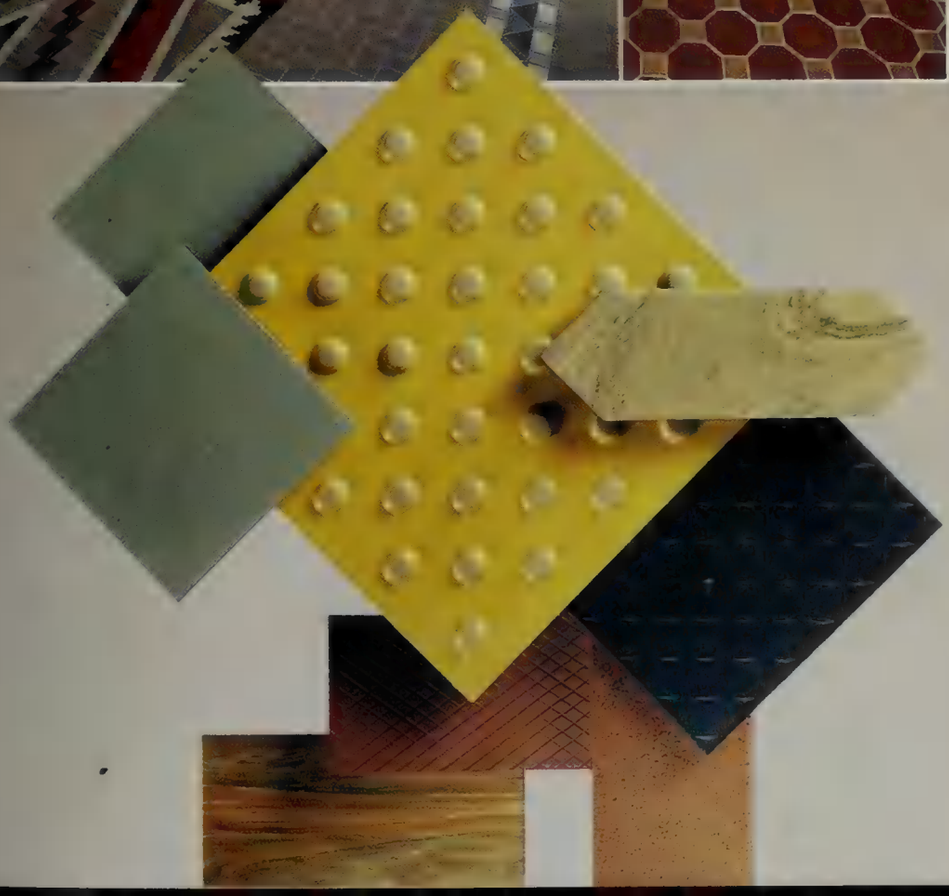
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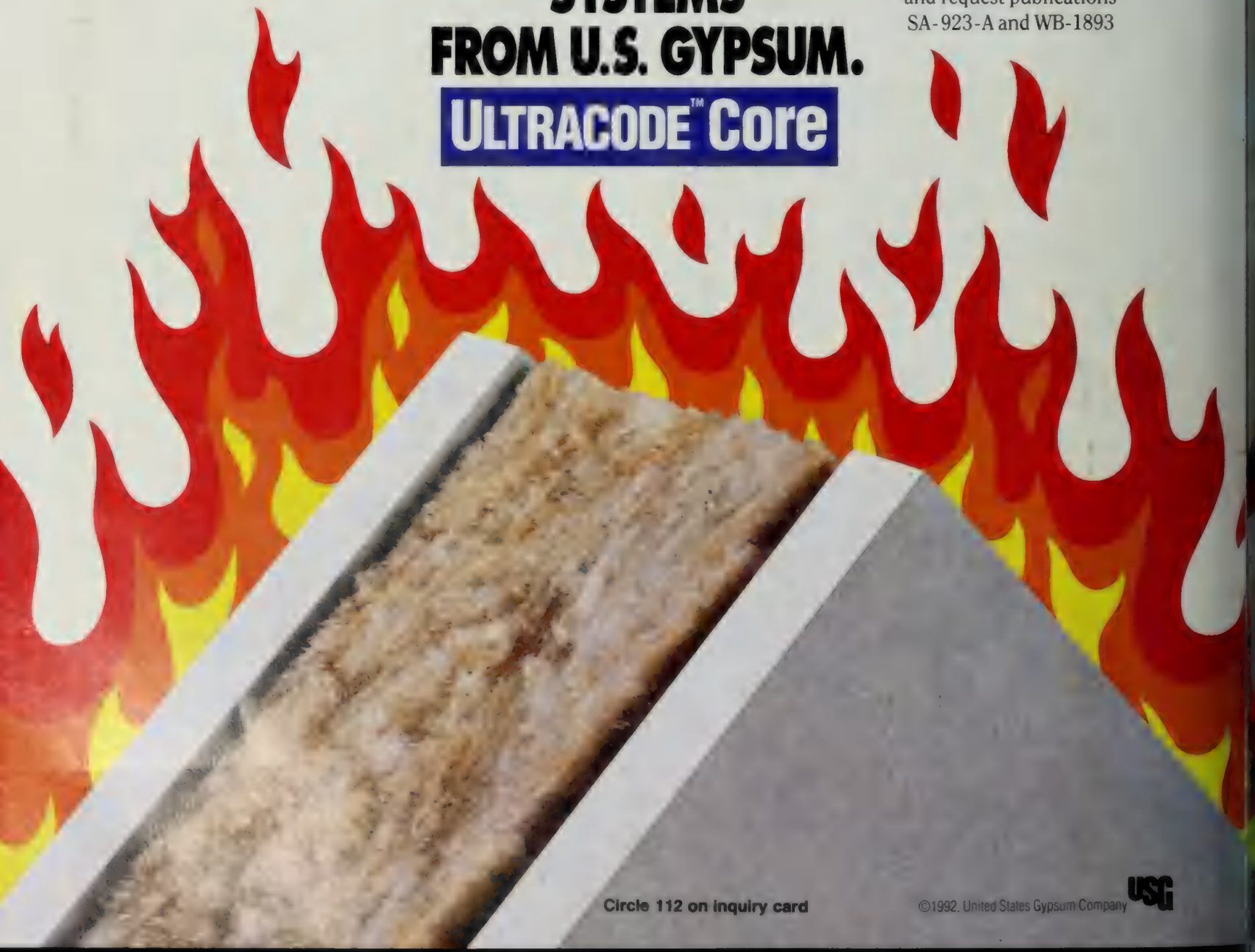
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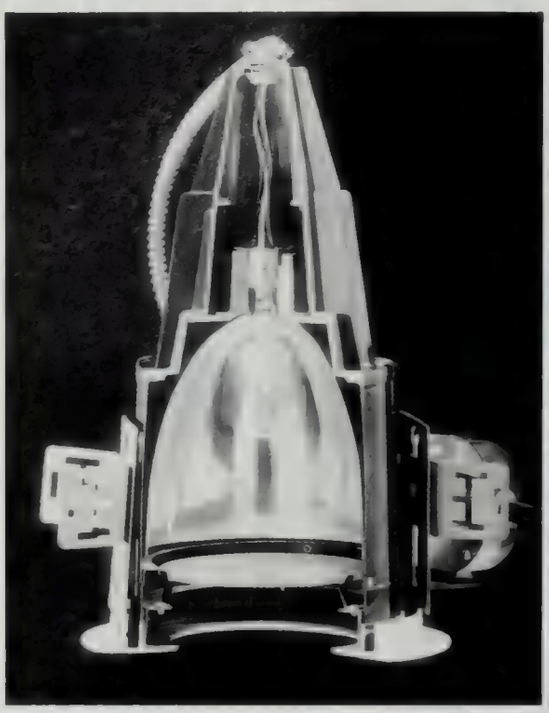
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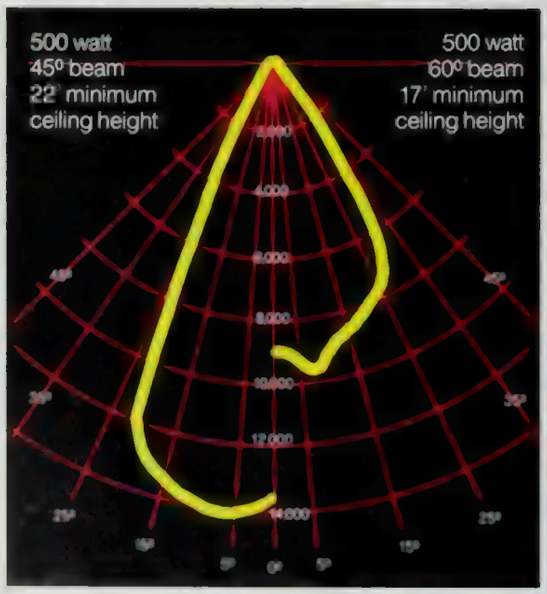
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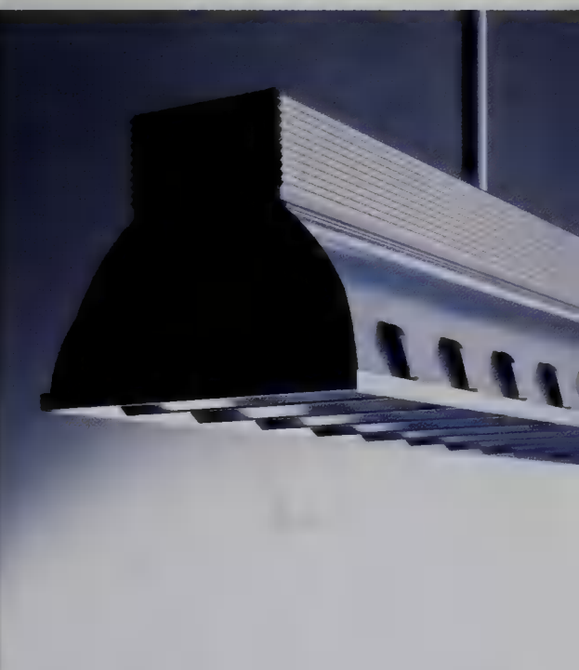






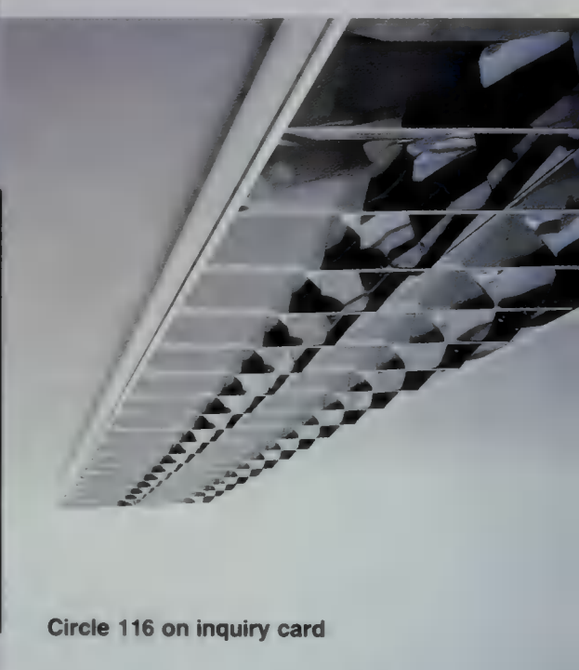
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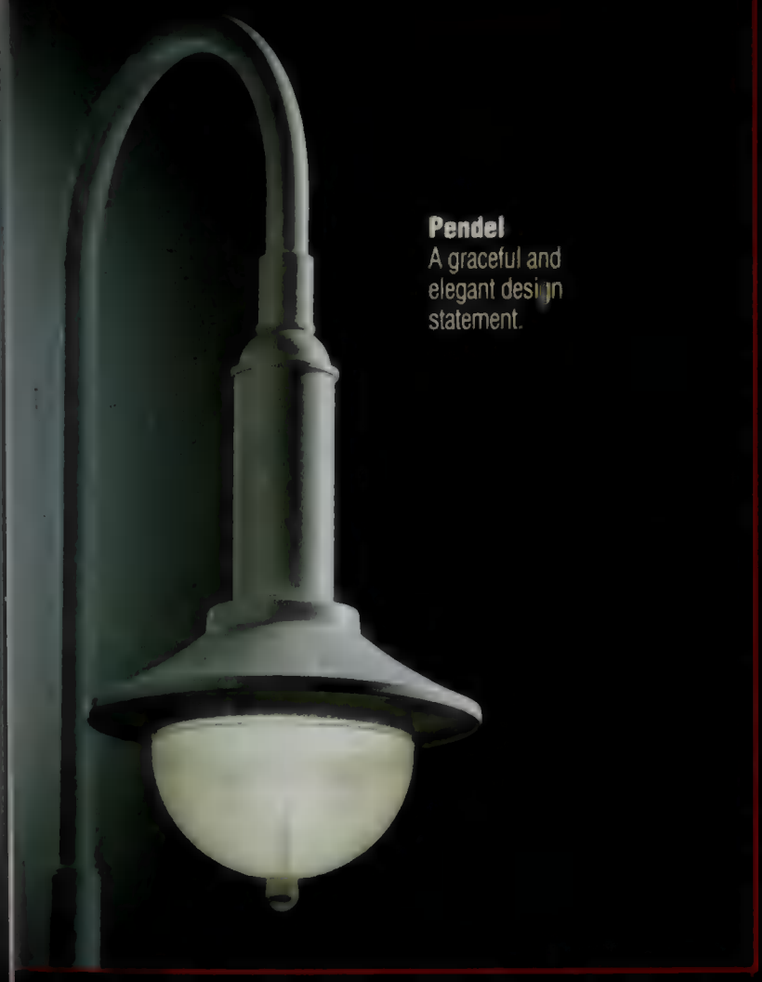
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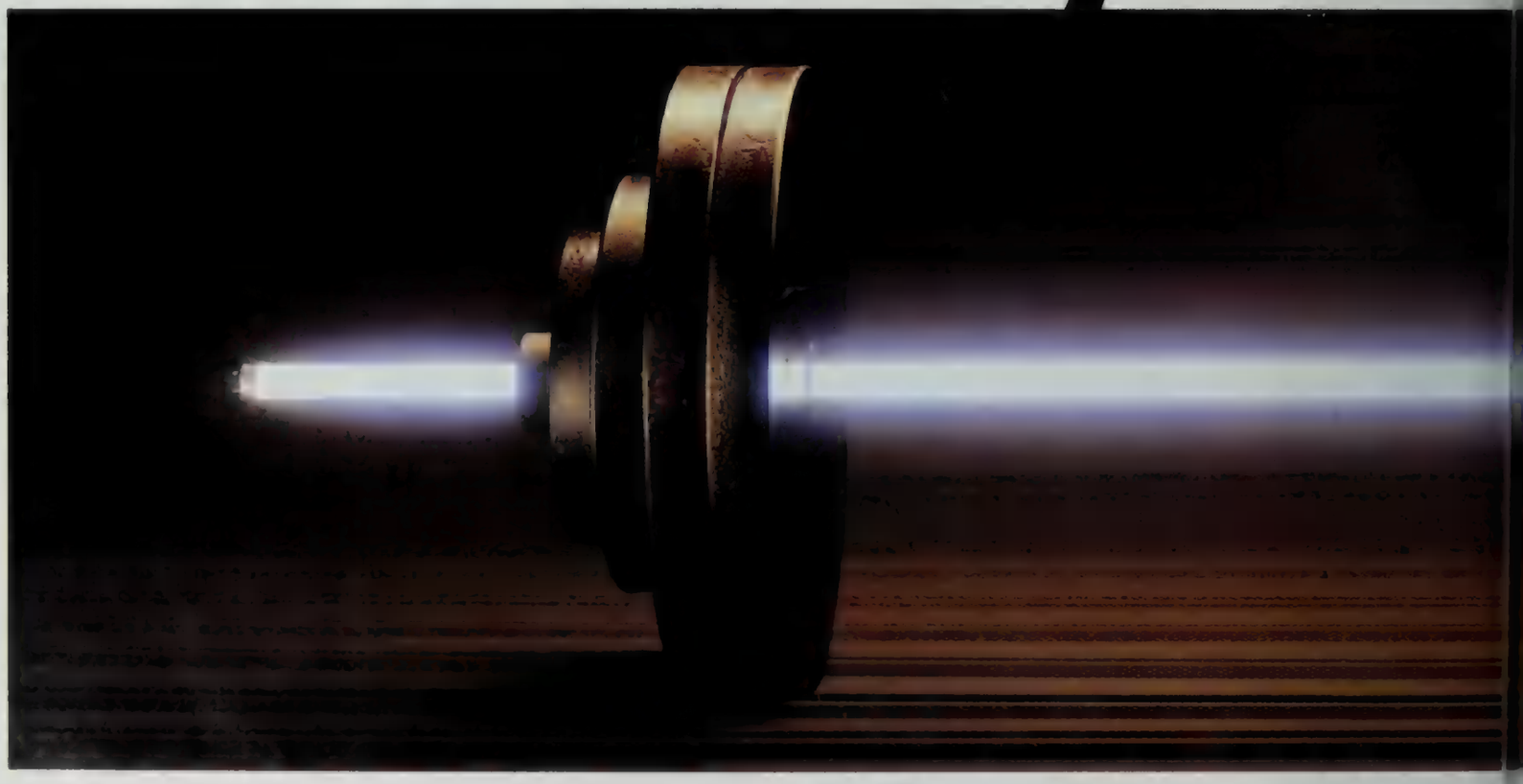


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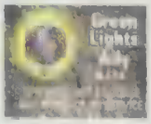


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Something So T



Not to kick sand in the competition's face, but no other T-8 fluorescent outperforms our TL 80™ Series. When combined with electronic ballasts, they can reduce costs up to



43%. A fact that carries a lot of weight. Especially considering lighting can account for up to 50% of your electric bill. And when you combine those savings with utility rebates, your system payback period will be reduced even further.

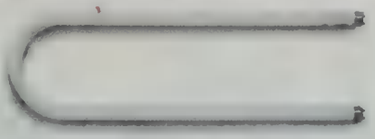
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Circle No. **119**

On the Road

IES (NY) Exhibit Highlights Richard Kelly's "Lighting Ideas And the Equipment to Make Them Work"

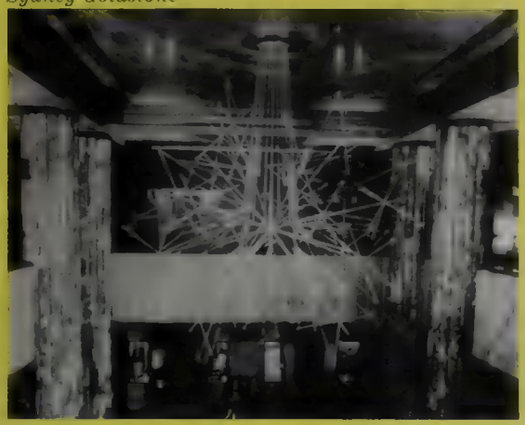
Michael Bodycomb





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Sydney Goldstone

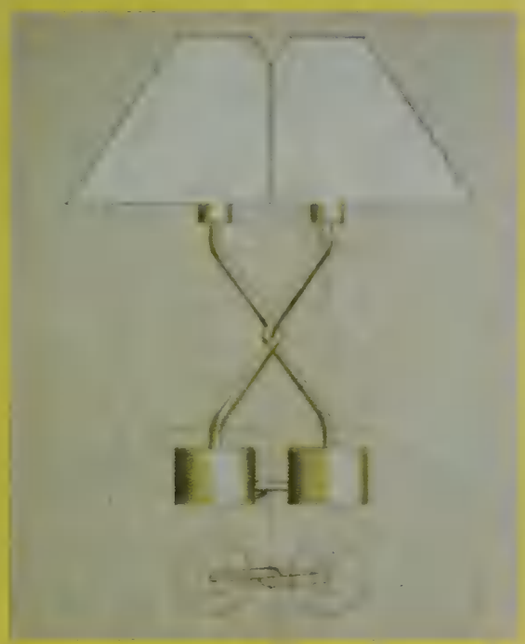


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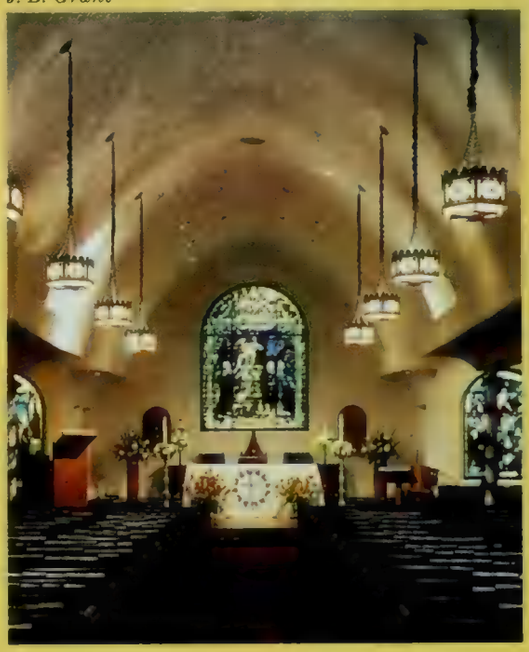
After a spring premiere at Haines Lundberg Waehler, the IES (NY) Richard Kelly exhibit has been receiving invitations to travel. A pioneer of architectural lighting design, Kelly began his career in 1928 designing fixtures for a manufacturer, and opened his own office "for designing and selling lighting ideas and the equipment to make them work" in 1935. Over the next 40 years, he collaborated with Louis Kahn on the Kimbell Museum (1), adjusted the disturbing imbalance of interior and exterior light at Philip Johnson's Glass House, and worked on over 300 other projects in Brazil, Canada, Germany, Israel, Norway, and the U. S., including the power-lunch Four Seasons (2) in New York. His fixtures ranged from the table lamp exhibited in MOMA's 1941 "Useful Objects Under Ten Dollars" show to the 12-ft lightweight wireless chandelier (3) of 1954. The exhibit, curated by Renee Cooley and Matthew Tanteri and tentatively scheduled for Rensselaer Polytechnic Institute in Troy, New York, this winter, includes such project and fixture sketches as these elegant post-war Modern three (4, 5, 6). ■

1. Kimbell Museum of Fine Art
2. Four Seasons Restaurant
3. Barbizon-Plaza wireless chandelier
4. Untitled fixture design
5. Fixture design #217
6. Untitled fixture design

New York City

Saving Grace

J. B. Grant



Churches can tend toward the dramatic, so it seems surprising that theatrical designer Charles Cosler's lighting goals for Christ Church & St. Stephen's emphasize something so practical as energy savings. Cosler reworked the original chandeliers, hung them in a new pattern to better light the ceiling and the prayer books in the pews, and equipped each with both A lamps (for services and concerts) and compact fluorescents (for all other times). Putting the A lamps on dimmers, says Cosler, softens the on/off impact on the filaments. ■

Los Angeles

The Lamppost As Art

Sheila Klein



Artist Sheila Klein has created a 120-ft-long urban candelabra called "Vermonica" out of historic Los Angeles street lamps and installed it in a shopping-center parking lot at Santa Monica Boulevard and Vermont. The sculpture will remain through April 1994. ■

San Francisco

Moonlight and Lampposts to Highlight Reworked 1976 Building



Cesar Pelli's redo of the 17-year-old One Market will include distracting attention from an overly high ceiling by lining the interior concourse with a canopy of curved back-lit panels on 14 custom "street lamps." Cline Bettridge Bernstein plans on using 75W PAR38 floods to backlight the panels and 250W PAR38 spots to pool light on the floor, with alternating "moonlight" pools from HID sources glowing from the distant ceiling. Dimmers, says Francesca Bettridge, can extend lamp life up to 300 percent. Similar lamps will accent outdoor sites. ■

Briefs

Awards Class Acts, Foul Play

▪ The 1993 Nuckolls grant went to Washington, Oregon, and British Columbia Universities for a Pacific Northwest Curriculum Consortium.

• The Brunner grant, awarded by AIA's New York chapter, is shared by three projects, two light-oriented: Bruce Eisenberg's photo documentation of 1880-1940 fixtures and Cameron McNall's film on light typologies linked to era and style.

Publications

• *Specifier Reports: Screwbase Compact Fluorescent Lamp Products* and *Lighting Answers: T8 Fluorescent Lamps* are available from Rensselaer Polytechnic Institute, 518/276-8716, fax 518/276-2999.

• The new National Lighting Bureau publications directory is available from 2101 L St. N. W., Washington, D. C. 20037.

Fall Classes

• IES (NY)'s five fall courses include the intriguing "Illuminating Engineering for Real People." 212/571-0617.

• The Reggiani applications program continues with a show of Edward Zucca's art furniture beginning September 30 at 800A Fifth Avenue, New York, N. Y. 10021 212/421-0400.

• "Broadway Theatre Lighting" features Jules Fisher October 14-17 at John Jay College in New York. Phone/fax 212/645-4977.

• Lighting Dimensions International Workshops run November 12-15 at the Orange County Convention Center in Orlando, Florida. Contact LDI93, 135 Fifth Avenue, New York, N. Y. 10010, 212/353-1951, fax 212/677-3857.

• The National Symposium on Healthcare Design, November 18-21 at the Chicago Marriott Downtown Hotel, features a CEU course by RECORD LIGHTING columnist Jim Benya and a program by Dr. Jacob Lieberman, author of *Light: Medicine of the Future*. 510/370-0345, fax 510/228-4018.

Knock-Offs KO'd

Thomas Industries has beat one U. S. and two off-shore fixture companies on federal copyright and patent charges, and has subpoenaed the records of 17 others. According to attorney Dan Fuller, knock-offs of the Thomas Capri Line have been flooding the U. S., along with photography lifted from Capri catalogs. Investigators also found UL labels on products never tested, or not tested in all component combinations. ■

apan

.ocation, Location, .ocation—and Light





s an increasing number of households lo-
ıte in movie-starved suburbs, Kaplan/
:cLaughlin/Diaz, Ogawa Architects and
'arner Bros. International vice president Ira
tiegler AIA have begun designing shopping-
enter houses for a joint venture of Warner
ıd retailer Nichii Co. Ltd. The circular glass
airwell (top) at the eight-plex on the busiest
reet in the Higashi Kishiwada shopping
enter outside Osaka evokes the streamlined
)30s-40s in its neon-lit crown and floating
offit; a polished metal ceiling mirrors a neon
rip inside the soffit. The lobby (above) fea-
ures triple rows of bright white neon and
tersecting strips of recessed downlights
ıat connect the glass stairwell, the eight au-
toria and a huge street-side oculus (not seen
ere). The lighting was handled by the joint
enture's Mycal Engineers with Plaza Design
ıd Asahi Denki Kogyosho. ■

San Francisco

Raking Light's Progress



Bob Swanson

A Shriners' temple from 1917 to 1970 and the Alcazar Theater to 1985, this landmark was a mess until FeeMunsonEbert restored it and relit the originally modestly decorated interior. Horton-Lees' Teal Brogdan took on the more extravagant exterior, using mostly off-the-shelf equipment and direct raking incandescents on dimmers to accentuate relief. Concern about possible harsh effects led to late-night mock-up work resulting in a layer of soft fill light to balance intensity on overhangs and columns. ■

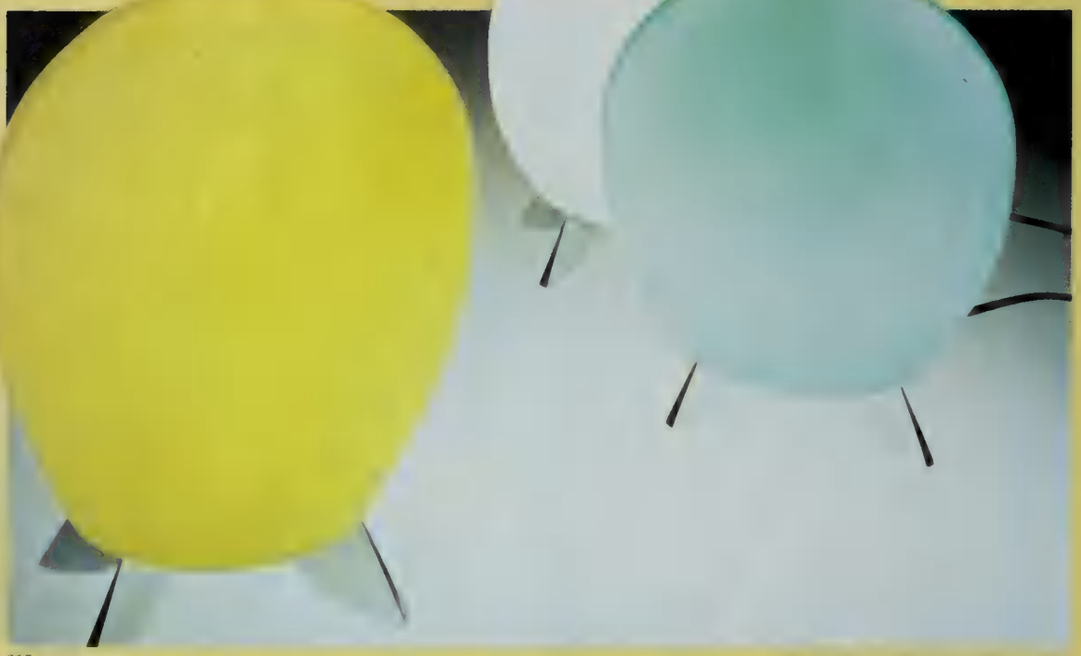
New York City

Shedding Light on a Below-Grade Gym

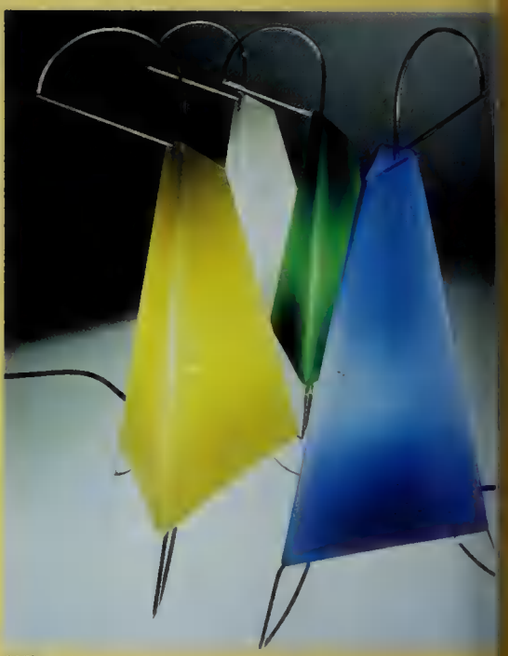


Brennan Beer Gorman Monk design director William Whistler raised the Sheraton New York health club from near-cellar status by digging a trench to let in daylight and views of a retaining-wall mural; coved halogens follow the window arc. Aluminum casing with a hand-ground finish catches light in a way that conveys an air of transparency and weightlessness to the structural columns; each has a collar of fluorescents shining through slots at one-in. intervals. Overall light comes from halogens dropped on stems between the ceiling's radial metal fins. ■

Decorative Lighting



215a



215b



216



217



218

215a, 215b. Miniatures
Roberto Pamio's ovoid Pulce lamp is just under 10-in. high, diffusing light from a frosted 60W bulb through blown Murano-glass shades of Nile green, yellow, white, and rose (not shown). Pyramid-shaped Lucerna table light, also by Pamio, comes in deeper-colored green and cobalt blue, with a chrome carry handle. Leucos USA, Inc., Edison, N. J.

216. Detailed
A mid-scale (20-in. high) dignified table lamp, Orione combines a cast-aluminum base and shade support with a polished-mahogany stem, holding a sanded pressed-glass diffuser. White glass shown; aquamarine is also available. A Rodolfo Dordoni design. Artemide, Inc., Farmingdale, N. Y.

217. Figurative
Dan Dailey is the glass artist responsible for many of the Deco-influenced fixtures and glass panels in New York City's restored Rainbow Room, such as the clever "he and she" lights in the restrooms. For a recent series of large (36-in.-tall) sculptures, he has placed unique illuminated glass "heads" on fabricated-bronze "bodies" for anthropomorphic lamp figures. Leo Kaplan Modern, New York City.

218. Heroic
Architect David Baird's Prometheus table lamp has a diffuser made of two panels of molded glass clipped together; the leg-like base, one piece of formed steel, has either a silver- or gold-cadmium finish. Lamping may be compact-fluorescent, halogen, or incandescent bulbs. Ziggurat, San Diego, Calif.

219. Ethereal
Formerly associated with the Sonneman Design Group, lighting designer Stephen Blackman has developed products for George Kovacs, Lightolier, and other fixture manufacturers. His most recent client, LBL Lighting (initially Lightning Bug, Ltd.), produces his competitively priced Cloud Series: Nimbus, Stratus, and Cirrus. Flame-resistant white shades are made of textured recycled paper, backed with UL-listed material. Bases are black or bronze-tone metal; lamps stand 23-in. high. There is also a floor lamp version of the Nimbus design. LBL Lighting, Chicago Heights, Ill.

220. Metallic
For his Fire & Water fixture line, David Bergman has turned the common copper tubing used in water-supply systems into

ıble-top lamps and dramatic sconces ecorate as well as illuminate.







221



222

aceful lamps, sconces, and candelabra. ctured is the two-light Calla Lily, with rving stems of copper tubing and petal-e shades of burnished wire mesh. mping is candelabra-base incandescent; ay be ordered for halogen lamps. David rgman Architects, New York City.

21. Classic
20-in.-high table lamp, the newest Michael aves design for Baldinger's Villa Collec-n, was inspired by the wealth of chitectural detail found in the Villa erylos in Beaulieu-Sur-Mer, France. Like e initial sconces and chandeliers, the table mp offers diffusers in white opal glass, ar frosted glass, or natural onyx. One n.-wide glass panel is hinged on a vertical ge, and can be opened to reveal the light urce. Finish options for the metal base include antique, polished, or satin brass, chrome, satin nickel, and verde green and Etruscan bronze paint. Baldinger/Lowy Partnership for Design, Astoria, N. Y.

222. Custom
Details, a new finish program for this manufacturers line of 70 different ceramic wall sconces, offers 48 choices (eight are pictured). These color and pattern options include solid-color treatments in bisque, glaze, and paint; patina, metallic, and faux marble effects; multiple-color treatments for floral, shell, and celestial sconces (the bright yellow sun on a dark background); and stencils such as the ivy at lower left. The UL-listed sconces also come in an unglazed bisque that can be finished on-site with latex paint to match other interior materials. Justice Design Group, Inc., Los Angeles.

215a, 215b. Pulce and Lucerna lights, Leucos USA.
216. Orione lamp, Artemide, Inc.
217. Two light sculptures by Dan Dailey.
218. David Baird's Prometheus lamp.
219. Cloud Series, LBL Lighting.
220. Calla Lily Light by David Bergman.
221. Michael Graves's Villa Lamp.
222. Custom-decorated ceramic sconces from Justice Design Group, Inc.

Quick! Read About Power Quality Now, *Before* You Fry a Subtransformer

By James R. Benya

Lots of designers pay little attention to circuits and wiring beyond the junction box. But as the lighting and electronic devices connected to those circuits become increasingly complex, power quality has become one of the lighting specifiers' most important "new" topics. All electric loads in a building affect power quality. However, as the percentage of electrical devices that consume current in a nonlinear fashion grows, and linear loads like incandescent lighting decrease, utilities and some users have become concerned about the quality of the power delivered by the power grid, and what happens to it once inside a building.

Power quality covers a broad range of issues, the most basic of which involves fluctuations in a building's supplied voltage.

Voltage regulation is power quality at its most basic. It concerns the quantity of volts actually supplied to each connection or outlet, relative to the specified "design-voltage" of the electrical system being supplied. If the voltage supplied varies by more than plus or minus five percent from the design-voltage, it can cause problems such as shortened lamp life, motor overheating, and other damage to electrical components.

Voltage transients or *spikes* are brief periods of high-voltage caused by lightning strikes, utility-company switching of high-voltage lines, and so on. Transients are often 10 to 20 times the system's design voltage (up to 2500 volts on a 120-volt system), and are the primary cause of electronic equipment failure. In lighting systems, transients are destructive to electronic ballasts, dimmers, and other devices that use solid-state components.

Surges and *sags* are voltage fluctuations caused by utility-companies or the operation of large equipment in buildings. Surges and sags generally last only a few seconds but performance of equipment can be affected.

Dropouts, *brownouts*, and *blackouts* are almost always caused by utility-company activity. Brownouts can cause serious damage to equipment and should cause most electric equipment to be turned off. Dropouts are short-term blackouts which can be damaging, particularly if attempts to restore power result in transients.

James R. Benya is the director of Lighting [illegible] at Pacific Alternatives, [illegible] Francisco.

Not New Age mantras

Harmonic distortion and power factor sound like buzz words from a some New Age California guru, but they actually come from electrical-engineering textbooks. They describe two complex power-quality issues lighting designers should be aware of.

Harmonic distortion (HD) is the disturbance of an electrical power signal's normal wave forms, which in theory are delivered by the utility company in a perfect constant, or "steady" state. HD can cause erratic behavior of electronic equipment, but its worst effect is in energy waste, evidenced by electrical-distribution-system component overheating. There are two types:

Current harmonic distortion (CHD) is caused by devices that draw current in spurts rather than in a linear fashion, with respect to system voltage.

Voltage harmonic distortion (VHD) is caused by current harmonic distortion. The distorted current wave causes the voltage to drop non-linearly through losses at distribution transformers and in ordinary wiring, throughout a building's electrical service.

IEEE Standard 519 permits up to five percent VDH in a building. To cause this, CHD of at least 25 percent of the same type and at the full-rated load must be present in the building. Since different harmonic distortions do not add up, and in fact, sometimes can cancel one another, seldom are serious VHD problems encountered. But there is a growing likelihood that this condition could occur. Harmonic distortion is associated with several well-known problems:

- CHD can cause neutral overcurrents in three-phase systems. This can occur in both home-run circuits and panelboard neutrals.

- CHD can cause distribution-transformer overheating. The smaller the transformer, the greater the potential problem. Ordinar transformers should be de-rated by as mu as 50 percent if the load has a high harmo content. Transformers can be "k-rated" to match the expected harmonic load at full c pacity, but most aren't.

- VHD, neutral overcurrents, and transformer overheating are most likely to occu in an ordinary building's 120/208V system It is also on these circuits where the most computers and peripherals have been installed, on circuits typically not designed f a high-harmonic load. Worse, the harmoni distortion of computer and peripheral load tends to produce a "current gulping" type f wave which has over 100 percent distortio common among electronic devices. In general, these buildings use separate 277/480 systems to feed fluorescent and HID light ing systems, which generally have very lit harmonic distortion.

Power-factor (PF) describes to what exten the current drawn by an electrical device i in synchronization with the voltage drawn If voltage and current are significantly ou of-phase, a large amount of current is dra but not actually used. Good PF is 1.0 (100 percent), meaning maximum power (watts per current (amps) consumed. Devices wit poor PF draw excessive current. If there a enough of them installed in a building, the have the potential to overload and overhea power-distribution-system components. Al kinds of common devices have low PFs, ev some household appliances.

Power quality and fluorescent lighting

There has suddenly been considerable inte est in CHD and PF largely because utility companies have become fearful that some the energy-efficient lighting equipment the have been paying for under rebate progra could wind up introducing power-quality problems into buildings where it was installed or into the power grid as a whole.

Some "analysts" have actually warned tha massive power-grid failures would occur i significant quantities of high-harmonic-distortion compact fluorescent lamps were installed. Some have even begun to talk of the need to clean up power as if it were lik

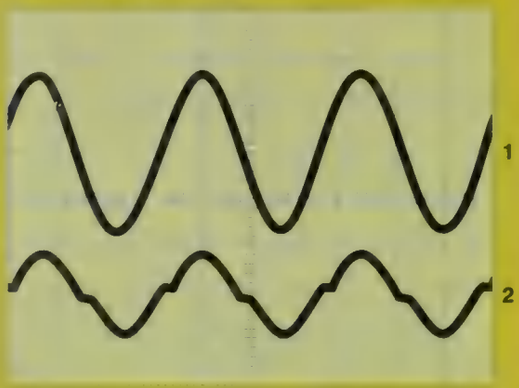
'ome people are getting hysterical about energy-efficient ighting's effect on power quality. Here's what you need to know.

:her environmental issues like clean air or ean water. Now some ballast manufactur- :s are claiming that only ultra-low armonic-distortion electronic ballasts (see raphs, right) should be retrofitted into uildings. As a result, most utilities have laced harmonic-distortion limits on ebatable products, and many building own- :s and operators have simply stopped etrofit programs altogether because they ave been convinced that electronic ballasts ill cause harmonic-distortion problems in ieir buildings.

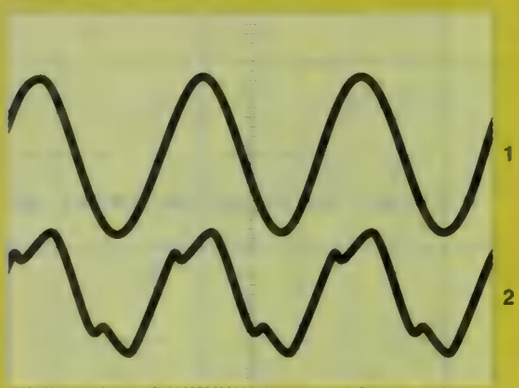
Much of this talk misunderstands what hap- ens when power is generated, and assumes iat utility companies already waste consid- rable amounts of energy generating and istributing "distorted" power. While this *ay* be true of small power systems, which erive power locally from a small generator, not issue for most utilities. Most utility ompanies in the U. S. have improved their perations, so the power delivered to the ustomer is of relatively high quality. Most orrect PF throughout their systems, and ost remove the harmonics. That is not to ay there aren't energy losses. These tend to ccur in transmission, on the customer's remises (usually in subtransformers), or in ie transformer feeding the service to the uilding.

t is generally safe to specify and use most f the lighting products on the market to- ay. Claims that harmonic distortion from ghting and other electronic products causes uilding electrical systems and utilities' ower grids to disintegrate are inaccurate. ndeed, in some cases, such claims were con- octed specifically to help sell products. To e on the safe side, the lighting specifier hould follow these guidelines:

Specify T-12 and T-8 electronic ballasts ith a total CHD level not to exceed 20 per- ent. Since the ballast industry's standard iagnetic ballasts have harmonics of 18 to 30 ercent, the use of electronic ballasts with 0 percent maximum will actually result in ss voltage-harmonic-distortion in the build- g than the magnetic ballasts, because they raw less current. Installing low-harmonic- istortion electronic ballasts, e. g. less than 0 percent, generally costs more and they



Representative "Reduced Harmonic" Electronic Ballast for F032 Lamps
Total harmonic distortion = 9.3 percent, power factor = 99.6 percent.



Representative Standard Electronic Ballast for F032 Lamps
Total harmonic distortion = 16.5 percent, power factor = 98.2 percent.

may be less reliable because they employ more active electronic components. There is not a single documented case of electronic ballasts with 20 percent harmonic-distortion causing or exacerbating any building-wide power quality problem. It is even less likely that this would occur on a lighting system operating at 277V.

• Specify pin-base, plug-in compact fluorescent lamps and permanently installed high-power-factor ballasts wherever possible. By avoiding screw-in fluorescent products, a higher-quality overall program is created, not only because they are non-regressive (screw-in incandescent lamps cannot be substituted for them), but the magnetic and electronic high PF ballasts for twins, quads, and other compact lamps tend to have relatively low harmonic distortion as well. Remember, however, that compact size is one of the principal advantages of the normal PF ballasts. It makes sense to use them for low-wattage compact fluorescent lamps, and for 120-volt wall sconces, desk lamps, and other low-wattage compact fluorescent applications.

• When using screw-in compact fluorescents, investigate high PF, low HD units. These are coming to market, and some utilities accept only these for rebating. Keep in mind that when it comes to saving energy, any harmonic compact fluorescent is better than an incandescent lamp. Right now the most effective and reliable compact fluorescents for home use have high HD levels.

In order to prevent problems caused by harmonic distortion, electrical-system designers should anticipate from now on that current consumption in buildings will be non-linear, and new power systems should be designed with low-impedence at high frequency, including oversized neutrals and harmonic-tolerant transformers.

In electric lighting, however, moderate CHD fluorescent lighting and high CHD dimming systems for incandescent lighting have been used for years. When these buildings are retrofitted with lower wattage lighting, their existing electrical systems will actually have excess capacity. Unless retrofitting results in all-new electrical systems, the likelihood that retrofitted lighting will cause the building's power systems to have problems is extremely low.

In residential applications, don't let concerns about power quality keep you from specifying screw-in compact fluorescent lamps. They can be utilized to save energy until permanent conversions to pin-based compact fluorescent lamps can be made.

In situations where designers are concerned about specifying pin-base compact fluorescent lamp ballasts that have low PFs in the vast majority of applications, their impact on building power-factor quality is extremely small. These PFs very likely will be mitigated by other loads. The primary benefit of using high PF ballasts is that more lamps can be placed on a branch circuit. ■

Shedding Light on the New National Energy Policy Act

It's only one small step towa energy-efficient lighting, but a gia leap across the bureaucratic aby

By Lindsay Audin

The National Energy Policy Act of 1992 is bringing the lighting industry both opportunities and headaches. Starting in 1994, it will raise lamp efficacy and color standards, improve product labeling, and make the lighting wattage restrictions in *ASHRAE/IES 90.1* the new law of the land. Administered by the U. S. Department of Energy, it exempts portions of utility rebates from income tax, while pushing federal agencies to make *their* 500,000 buildings more efficient.

Setting a standard

In a nutshell, the Act is one small step for energy-efficient lighting, but a giant leap for ▪ government previously oblivious to advances in technology. Some states already have tougher codes on their books, and utility companies offering rebates often set standards far above those of the Act.

The Act's greatest impact comes from adopting *ASHRAE/IES 90.1-1989* as the standard to be met by all state codes for new commercial buildings. Many states and federal agencies presently lack any such limits on lighting wattage, allowing installation of designs that will waste energy for decades.

Even this step is limited, however. *90.1* applies only to new buildings, so lighting upgrades are untouched. By contrast, some state codes, like New York's, cover renovations altering 50 percent or more of a building's existing lighting. *90.1* also doesn't address lighting quality or set light-level requirements, but the Act does increase minimum fluorescent color rendering index (CRI) levels.

Training, education, and outreach

The Act funds 10 new regional "Energy Efficient Lighting and Building Centers" that will provide information, training, and technical assistance to professionals; coordinate and assist educational efforts; and act as technical information clearinghouses. Similar assistance will be given to the states.

New lamp requirements

Rules for incandescent lamp efficacy take effect in three years, and cover any with medium screw bases of all wattages between 30W and 199W, between 115V and 130V, plus any reflector lamps up to 205W. Specialty incandescents, like rough service, stage, marine, photo, and so on, are exempt.

Requirements range from 10.5 lm/W (for lamps between 40W and 50W) up to 15.0 lm/W (for lamps between 156W and 205W).

Some standard PAR and R lamps don't quite make the grade, thus expanding the market for higher efficacy halogen versions. Most other types of incandescents should have no trouble meeting this spec.

Standards for 4-ft fluorescents take effect in October 1995, but 8-footers come under the Act's control next April.The Act is aimed at standard bi-pin 4-footers, U-lamps, and single-pin and high output (HO) 8-footers. Many other fluorescents are not covered, including 4-ft HO, all very-high output (VHO), plus odd types, like colored lamps, aperture lamps, and any with CRI over 82.

The following rules apply to lamps covered by the Act:

- Minimum efficacy of all standard 4-footers is 75, with no ballast losses included; almost all typical 4-ft lamps meet this spec.
- U-lamps over 35W need an efficacy of 68 lm/W, while those under or equal to 35W can be as low as 64. 8-ft lamps covered by the Act need at least 80 lm/W; high-output lamps don't quite meet this rule.
- 4-footers and U-lamps over 35W need ▪ CRI of at least 69, while those under or equal to 35W can have CRI of only 45. 8-ft 65W slimlines and HOs over 100W need CRI of 69; slimlines under 65W and HOs of 100W or less need a CRI of 45. Presently, typical cool-whites have a CRI of 62, while warm-whites are about 52.

The Act does not create new standards for HID lamps. Instead, DOE will create testing requirements, followed by lamp and labeling standards based on them. Manufacturers then have three years to bring their lamps into compliance. Due to the time alloted to create these rules, HID lamps will probably go unregulated until about the year 2000. With the exception of 8-ft HO lamps and some incandescent reflector lamps, compliance with these standards should n be a problem. There is, however, a loopho if DOE determines that forcing a lamp to comply will drive it off the market, it can exempted from the law.

But there's a typo in the loophole: while cit section 325(j), it's actually section 325(i) tha covers efficacy; section 325(j) actually cove showerheads and faucets. The impact of th error is unclear at this time.

Ballast standards

Existing—and very low—federal ballast standards are not raised, despite the majo improvements that have occurred in this technology. *90.1* merely echoes those existing rules, so the chance to provide a national incentive to use more efficient ballasts has been lost for the time being.

Luminaire standards and labeling

During the next two years, DOE will help manufacturers create a voluntary testing and information program that includes sp for testing procedures, and help for consumers to get a handle on fixture efficiency, energy savings, and cost. A ye later, the Federal Trade Commission will develop labeling rules for light fixtures.

Limiting utility-rebate taxation

Utility rebates for end-users installing hig efficiency equipment (such as lighting) will partially tax-exempt, under this schedule:

- In 1995, 40 percent exempt.
- In 1996, 50 percent exempt.
- After 1996, 65 percent exempt.

Utilities in most states now offer such rebates, but their impact is seriously blun when subjected to corporate income taxes It's unfortunate that part of such funding remains taxable, but this aspect of the Ac should now encourage more utilities and e users to become involved in demand management and energy conservation.

It remains to be seen how the Feds will enforce upgrading of state (or even their own) energy codes; there is no mention of funding for "energy police" in the Act. Overall, however, it is a landmark piece o legislation, about a decade overdue. ■

Lindsay Audin is energy manager for Columbia University.

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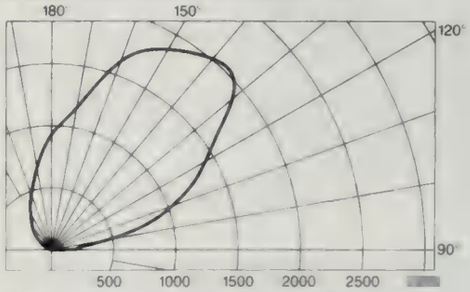
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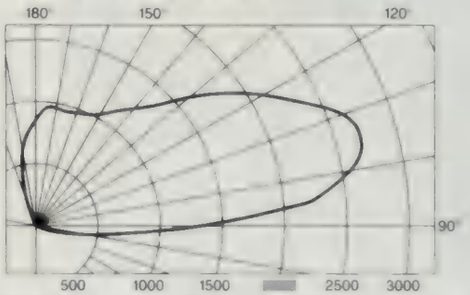
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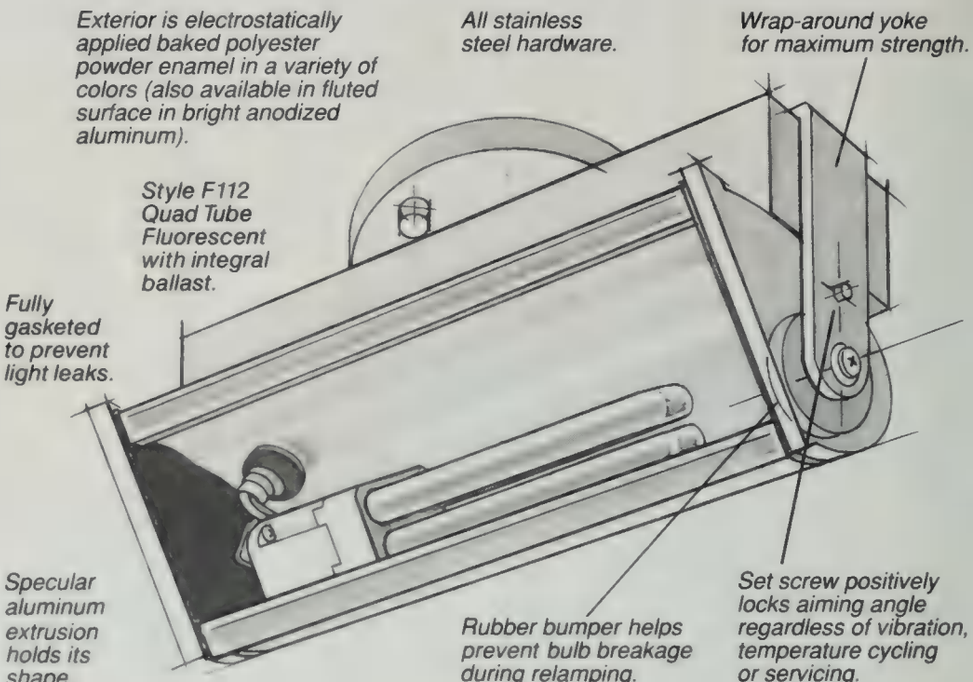


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1	127.0 / 74.4	100.0 / 58.6	50.5 / 30.9	22.7 / 13.2	11.1 / 6.2
2	101.0 / 56.5	84.4 / 46.6	49.8 / 27.6	25.5 / 14.1	13.8 / 7.3
3	50.2 / 40.4	45.1 / 35.2	31.4 / 23.4	19.4 / 15.8	12.0 / 9.1
4	29.2 / 31.5	26.4 / 28.2	20.1 / 21.5	14.5 / 15.8	11.1 / 10.6
5	18.4 / 21.6	17.5 / 20.5	14.7 / 16.8	11.6 / 13.2	8.7 / 9.9
6	13.1 / 15.8	12.3 / 15.0	9.9 / 13.3	9.3 / 11.2	7.2 / 9.7
7	9.8 / 13.4	9.5 / 13.1	7.8 / 12.2	7.5 / 10.7	6.2 / 9.1
8	7.8 / 12.9	7.6 / 12.8	6.2 / 11.8	6.0 / 10.7	5.0 / 9.1

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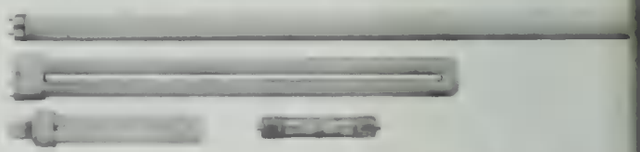
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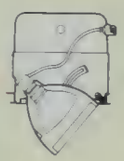
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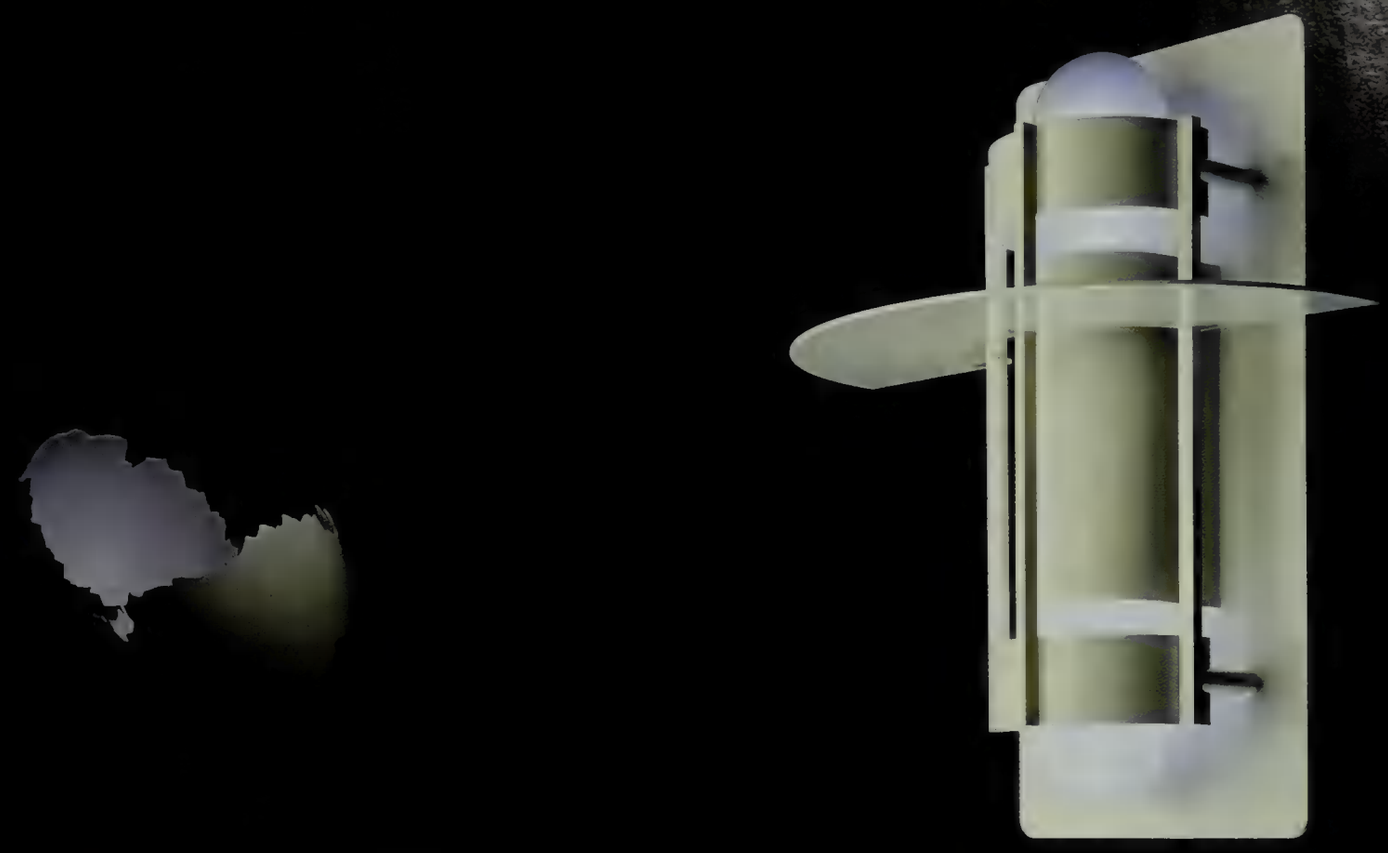
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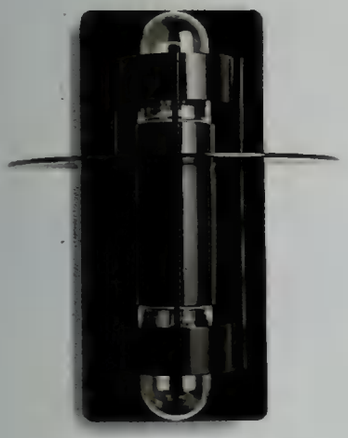
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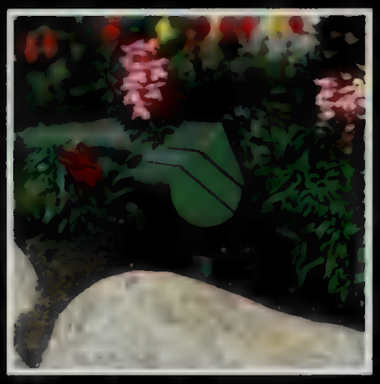
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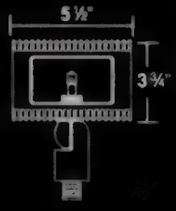
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Lighting Designer Certification Program Should Be Funded

It has been some time since I reported on the activities of the National Council on Qualifications for the Lighting Professions (NCQLP). For those who do not recall, the NCQLP is a non-profit corporation established by a group of professionals who wish to set up a certification program for lighting designers. To get a certificate, a candidate must meet minimum education and experience requirements and pass an examination. There is no provision for getting a certificate through a "grandfather clause."

The certificate is *not* a license, nor is it intended to restrict architects, engineers, lighting designers, or others from designing lighting. According to NCQLP board of directors member Stephen Lees, there is a need to qualify people who wish to design lighting under federal programs such as the Environmental Protection Agency's Green Lights, and the U. S. Department of Energy's Federal Relighting Initiative. State governments and corporations could follow the Feds in requesting a certificate from those who wish to participate in their own programs once the NCQLP program is in place.

Development of the certification procedure is next. Putting together fair, comprehensive exams is a costly process that won't happen overnight. In September, the NCQLP will ask the EPA to fund this step, says Lees. It is a worthy cause. Lighting certification will demand the development of better lighting-education programs, and that, in turn, can improve the work done by those who will light the buildings of the future. And everyone will benefit from that. *C. D. L.*

Color It Healthy



rple neons merge with blue
lides in a dreamy nightscape,
lming the nerves of ailing
tients and worried visitors.

Health Central
Orlando, Florida
HKS, Inc., Architect
Craig A. Roeder Associates
Lighting Designer



A hospital's waiting areas is one of the last places to look for unusual lighting—even if the hospital is just down the road from Disney World. But Orlando's Health Central public spaces and colorful exterior might be mistaken for a tourist attraction. Add lighting designer Craig Roeder's purple neons and blue floods, and even his rainbow-splashed atrium in another Florida hospital [RECORD LIGHTING, May 1992, pages 56-61] might pale in comparison.

"I had several objectives in lighting the public spaces here. First, I wanted to keep energy use to a minimum, and we accomplished that at .89W per square foot. Second, my new thing in these hospital atriums is to keep lighting equipment off the high ceilings, because changing lamps can be a headache for the maintenance people." Such pragmatic thinking has been the inspiration for many a dull design. But when the sun goes down in Orlando, the atrium at Health Central comes alive with washes of blue, purple, green, and white light.

The blue light that strikes the walls and mullions is created by 250W metal-halide floods fitted with dichroic blue filters. The green comes from mercury-vapor PAR38 lamps with 15-degree beamspreads, one mounted beneath each of nine 25- to 30-foot-tall palm trees in floor-recessed uplighting fixtures. Recessed, 500W quartz adjustable floods, mounted in the ceilings of the balconies overlooking the atrium, give horizontal surfaces a wash of white light from above.

The "voltarc purple" neon mounted in coves completes the color pallette, giving it its "punch," both from the interior and exterior (photos, previous pages and right). However, there's another reason why purple neon was speced: It matches the color of the furniture chosen for the project. "It's really unusual to have lighting literally part of the interior design," says Roeder.

Lamps and hardware aside, it's the overall effect that mixing these colors creates. Roeder wanted the lighting to help on-edge visitors relax while waiting out a tension-filled night by creating a dreamlike world as soothing as a good night's sleep. "When they first opened the place, the architect kept calling and saying, 'you've got to get down there. They hate the purple, and they hate the green, and they hate the blue.' I said, 'Fine.' And I dragged my feet for about two months. By the time I got there, they loved it. Patients and visitors kept coming over and saying, 'This is wonderful, this is so unlike every other hospital . . . ' and it's supposed to be."

For naysayers who might judge the effect of the night lighting solely by the photographs that accompany this article, Roeder explains that these are somewhat misleading. "In the first place, the mercury vapor looks much greener in the photographs. Second, the atrium photograph doesn't capture the downlight coming from the quartz sources. People don't change colors inside the space. Not at all."

The exterior of the building is partly illuminated by interior light, but mostly by a variety of 100W metal-halide fixtures (although the bronze reflective glass block and windows on the previous pages are given a boost by the setting sun). Each of the palm trees and the red planes of the building's exterior are grazed by light from burial-type uplight fixtures. The space-frame canopy (right) is illuminated by metal-halide fixtures with an up- and down-distribution, so that the structure as well as the pavement below is illuminated. Altogether, the effect is somewhat like a wonderful dream—in full color.
Charles D. Linn

Up Close

Colored light in hospitals. The tremendous influence of colored light on the appearance of Health Central is apparent in the exterior nighttime view of the building (right) and the interior of the atrium (page 31). Explaining this most colorful solution, lighting designer Craig Roeder says, "It's a hospital. People walk into it worried and sick. I tried to design an entrance space that provides them with light and energy—to 'beam them up' a little bit before they get to the patient rooms. There has been a lot written about color and healing: green is the color symbolic of healing, purple is symbolic of the spiritual self. Designers have written plenty about watts in the last few years. It's time that we study and write about the spiritual side of lighting, too."







Purple neon in coves casts a subtle wash of light on walls during the daylight hours (left), but is also supplemented by 2700K deeply baffled, compact-fluorescent downlights, with sharp cutoff characteristics to prevent glare.

2700K white neon lines a circular dome (below left) over a nurses' station, providing soft indirect light. The neon closely approximates the color of nearby compact-fluorescent downlights.

Purple neon blends into a dreamy nightscape (opposite), merging with the blues from the metal halides and the greens from mercury-vapor sources. Hints of the quartz-supplied floodlighting graze the tops of ficus and palm trees.

Credits
Health Central
Orlando, Florida
Owner: *West Orange Healthcare District*
Architect: *HKS, Inc.—Ralph Hawlins, partner-in-charge; Noel Barrick, project manager; Jonathan Bailey, project designer; Bob Martinek, project architect*
Lighting Designer: *Craig A. Roeder and Associates—Craig A. Roeder, principal; Robert Oakes, project manager*
Interior Designer: *HKS Designcare/Mitchell*
Electrical Engineer: *Smith, Seckman, Reid*
General Contractor: *The Robins & Morton Group*




Gilded Age

e hundred eight years ago, at the height of the Gilded Age, archi-ct James E. Ware captured the essence of the era in his Osborne partments on New York City's then-elegant West 57th Street. But 'are was obviously a visionary and something of a risk-taker as ell—three years after Edison threw the switch on the world's first ntral electric-power plant, Ware's vast "French flats" were gleam with incandescent lights. Today, Ware's severe exterior en-elope in classical and Chicago-style stonework once again holds an xplosion of opulence in his Renaissance Revival lobby, exactingly stored by Rambusch, a company that itself dates back to 1898.

n the 1970s, the first attempt at restoration involved cleaning the osaic and marble surfaces, which had languished under genera-ons of grime. But by 1989 concern over severe deterioration of ntique plasterwork and paints launched a full-scale repair effort nd, at last, restoration and reworking of the lobby lighting.

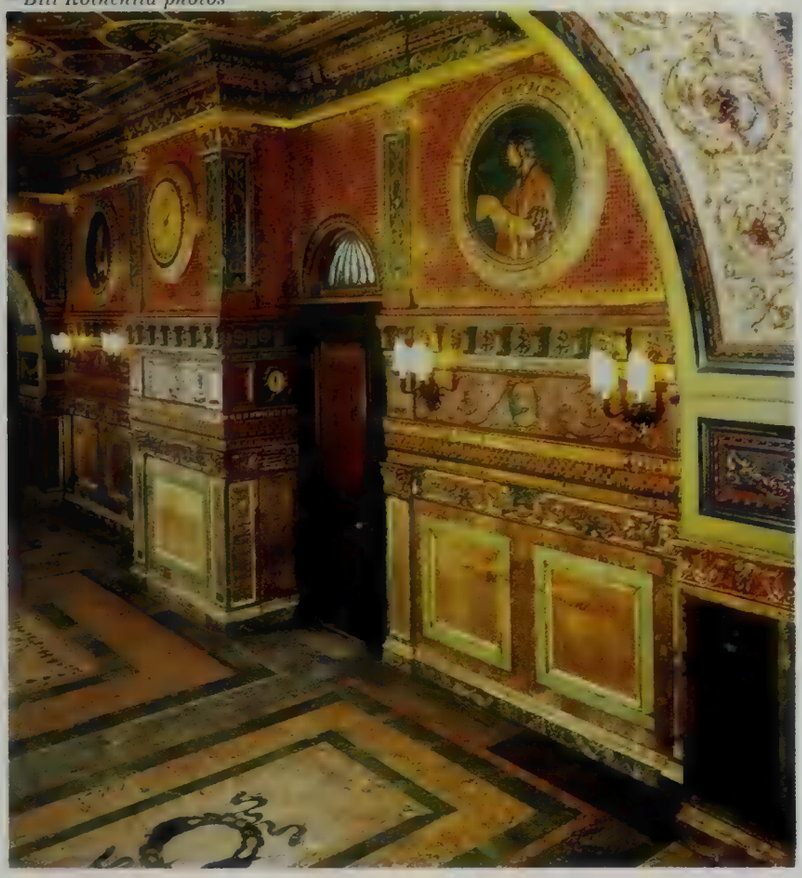
he problems Rambusch faced in rejuvenating the lighting scheme pify those encountered again and again in significant architectural storations. Given an agenda by the client to improve the level of il-mination, project manager Martin Rambusch and lighting novation project manager Edwin Rambusch agreed they still had o conserve the original building fabric by retaining the existing ntique fixtures—three ornate chandeliers fashioned of antique ma-rials. Meeting code and safety requirements, as well as improving he illumination, meant the Rambusches had to devise a way to alter et retain these existing fixtures.

here was no question that new wiring must be installed, but new ockets were another matter. Existing socket recesses in the cano-ies against the ceiling (see drawing, right) were too small and hallow to accommodate new standard sockets. Enlarging these re-sses would have meant endangering the chandeliers' delicate ood, molded plaster, and repoussé metalwork. Instead, the ambusch team cleaned and rewired the original solid-brass units in he canopies. Fortunately, the sockets in the hanging pendants idn't present this problem—their recesses were roomy enough to old new U. L.-listed sockets. Every facet of the restorers' work was uided by one principle: Do what it takes to preserve original ap-earance when practical, but use up-to-date mechanical and lectrical materials where it doesn't show nor damage the original. ndeed, the whole issue of U. L. listing is a source of concern for dwin Rambusch. "Conformance in a whole line of new fixtures is ot cost prohibitive," he says,"but it can be in one restoration. Then he U. L.'s codes and applications become problematic."

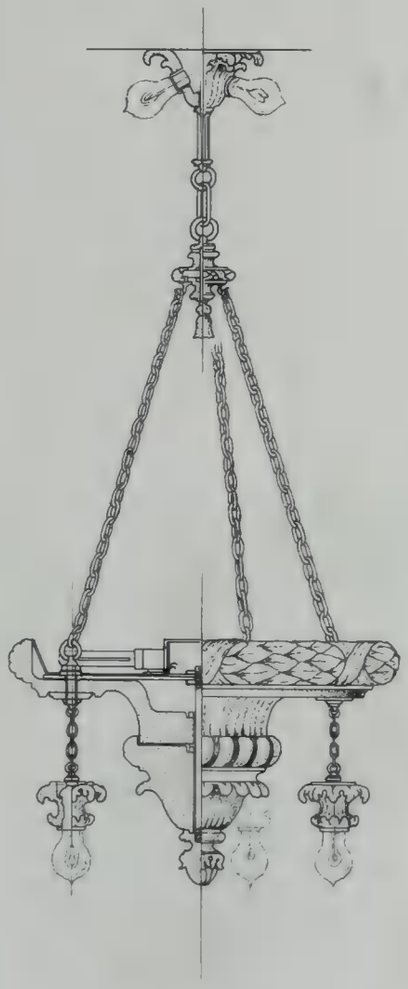
mproving lobby illumination was also a problem, for the fixtures ere designed to cast light down, leaving the rich ornament of the eiling and upper reaches of walls in darkness. This was solved by oncealing four 27-W compact fluorescents as uplights behind the reaths atop the main body of the chandeliers. Rambusch offered he clients either incandescents or fluorescents for this location and he building board decided on the latter on the basis of easier main-enance, despite the potential difficulty of controlling light quality. he dim old-style incandescents in both the hanging pendants and he canopies were replaced with 60-watt clear bulbs, and the brilliant estoration sprang to life. *Charles K. Hoyt*

redits: *The Osborne House Apartments, New York City.*
esigners and Craftsmen: *The Rambusch Company—Martin ambusch, project manager; Edwin Rambusch, project manager, ighting renovation.*

Bill Rothchild photos



Each refurbished original chandelier (drawing below) includes new compact fluorescents concealed above its main body to light ceilings and upper walls—an effect augmented with "fill" lighting in these photos.



Scenic Surprise

Sundance 11 AMC Cinemas
Fort Worth, Texas
David M. Schwarz/
Architectural Services
Coventry Lighting Associates



nventional wisdom said the idea would never work: Build a new 11-
reen cinema complex downtown, make people walk in off the
treet, then make them go up one, two, or three levels before finding
seat. But Sundance 11 AMC Cinemas is a part of a project full of
old ideas called Sundance West, a breakthrough mixed-use develop-
ent in Fort Worth, Texas. The building multiplies the revival led by
n adjacent historic district, a popular evening destination for resi-
ents and tourists. Sundance West, with a tower containing 70
uxury apartments, offers the only residential accommodations built
ecently in downtown Fort Worth. Sandwiched below are the cine-
as, retail space, and a two-level parking garage.

o make a profit, the cinemas had to compete successfully with sub-
rban malls. Seeing a movie at Sundance would have to be an event
orthy of a special trip, and worth repeating. "The highly sophisti-
ated client made a business decision to use architecture as a
arketing draw," says architect David M. Schwarz. His firm pro-
osed five concepts; the client chose an evocation of a movie set for
n imaginary 1930s musical, set in an industrial city center. Lighting
linches the design for high-volume repeat business, created by
chwarz with Coventry Lighting Associates. "The space reads dif-
erently each time you enter it," Schwarz notes. Lighting was the
implest and least-expensive way to provide that variety.

he cityscape motif is established primarily by freestanding painted
anels, cut into building shapes and set out from the walls. The
ghting details were refined through a full-scale mockup, explains
ghting consulant John Coventry. Panels are typically backlit by
eatrical "cyclorama" strip lights. These three-circuit fixtures hold
ws of halogen PAR38 flood lamps and red, blue, and green filters.
programmable controller cross-fades these, along with all other
xtures in the public spaces, to create a new scene every 10 minutes.
stairways, where limited wall clearance is available, white neon
acklighting is used, doubling as an ambient light source.

wo rows of track lighting are positioned in front of each cityscape to
dd color and project images such as moon and stars. "We decided on
ack rather than a theatrical system because, esthetically, theatrical
xtures are not always the smallest or nicest-looking things, says
oventry. "They are expensive and have a short lamp life, making
em much harder to maintain. So we decided to use four-circuit track
roken up into various lengths. That gave us lots of flexibility, less
xpensive fixtures, all the accessories we needed, neater wiring, and
alogen PAR lamps for longer lamp life." The system is still not low-
aintenance, but AMC's staff keeps it in top condition, says Schwarz.

mbient light in the four-story atrium is primarily provided by flu-
rescent backlighting on a sandblasted glass cityscape. A removable
aseboard conceals a two-tube strip. To allow relamping access, the
bes had to be horizontally mounted at floor level, yet they had to
pread light up and out into the space. "In order to make the lighting
irly even," Coventry explains, "the cavity behind the mirror is
ainted white, like a sign box. We designed a custom reflector that
rojects a lot of the fluorescent light back against the white wall,
hich actually becomes an illumination source." A cold-cathode cove
t the domed ceiling combines blue and 3500K-white tubes.

hanks in part to creative lighting, Sundance West is the highest-
rawing theater in the Dallas-Fort Worth area and the highest-
rawing AMC theater in the U. S. *Gareth Fenley*

areth Fenley is an Atlanta-based freelance writer.

Hedrich-Blessing photos



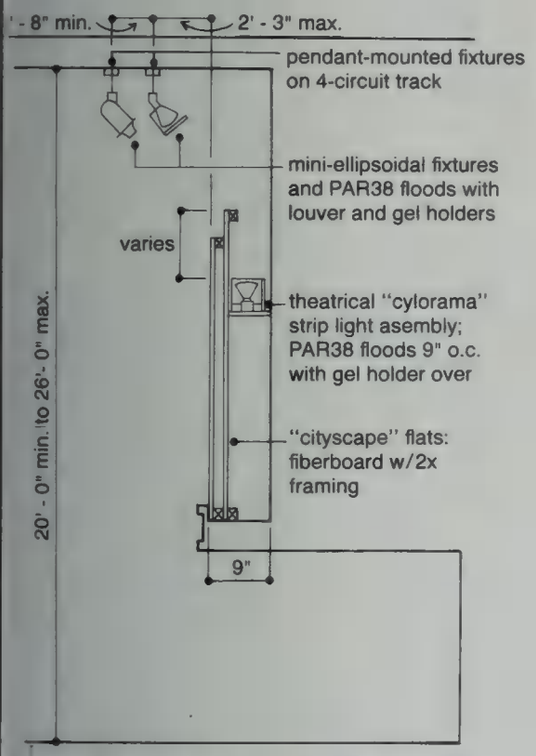


Patrons enter Fort Worth's only downtown cinema complex through a deceptively traditional facade. The small Art Deco-style building is all-new construction, and holds little more than a first-entry lobby. Escalators and stairs lead up into an ever-changing fantasy world of lighted cityscapes.



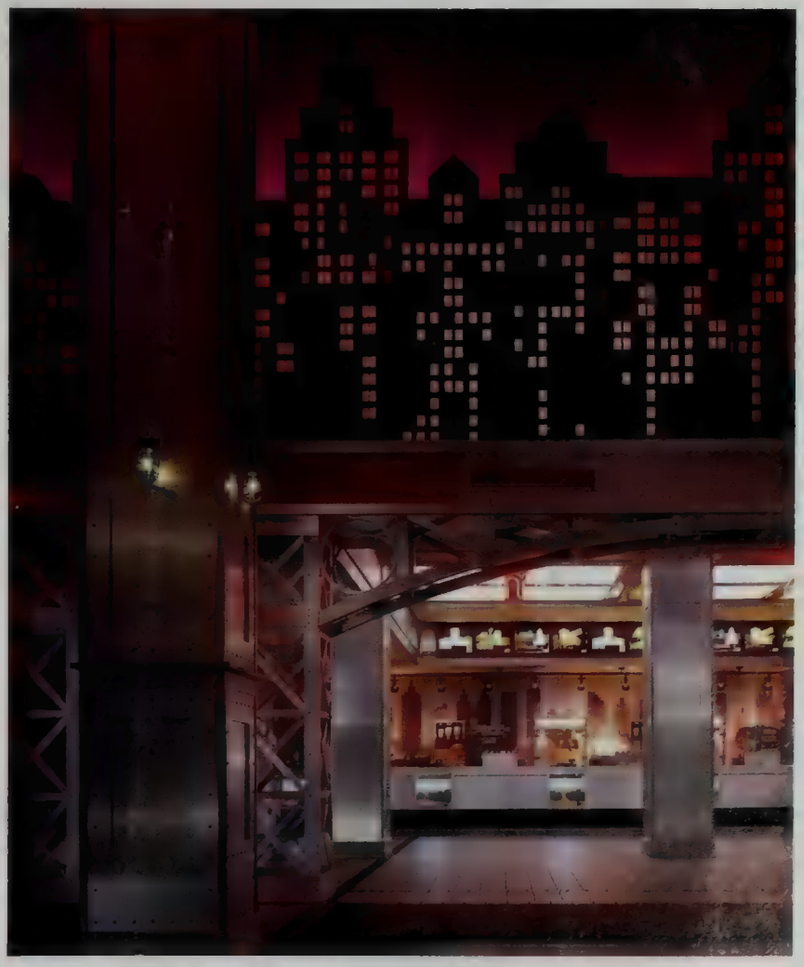
More than just a one-liner," n the words of architect David chwarz, Sundance Cinemas resent movie magic in the rand tradition of Busby erkeley. The king of the big 930s musical might have taged phalanxes of dancers in he four-story atrium. Ordi- ary moviegoers experience a tunning scene as they ar- ive— perhaps it is deep night ith projected stars and moon. fter the film, they may step ack out into a rosy sunset. A reset lighting system slowly otates 13 scenes, so every visit s a surprise. The architect and ighting designer together pent weeks programming the ystem, then (with the owner's full backing) locked it tight against tinkering.

A mirrored wall (at right in photo, opposite; frontal view, top right photo) serves two functions. It cuts cost by eliminating the need to construct and light a cityscape on one wall. It also provides the atrium's principal ambient light source. Sandblasted building silhouettes diffuse strong backlight, spread by a custom-designed reflector and fluorescent strips. The sandblasted glass does not reflect people walking by, thus preserving the mirror's three-dimensional illusion.



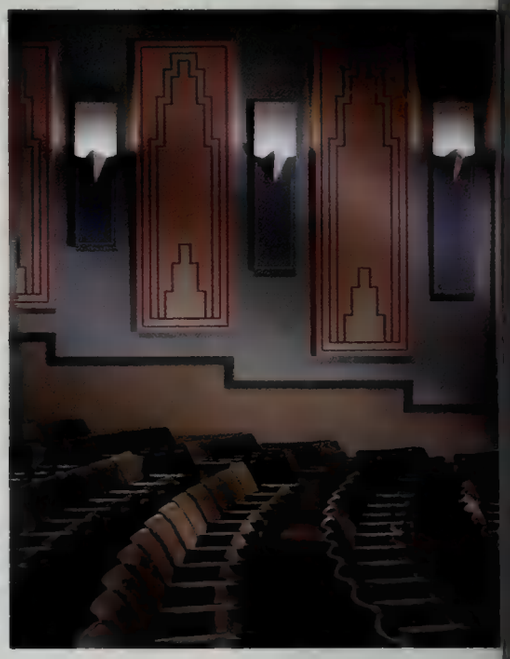
DETAIL OF BACKDROP LIGHTING











The profit-generating concessions (opposite) are lit more brightly than other interior areas. Simple recessed fluorescent fixtures do the job. Inside a theater (above), custom sconces spread halogen light upward and incandescent light down to the seats. The street-level lobby (top left) introduces track lighting, but backlit fluorescent poster boxes provide most of the ambient light. Typical corridors to individual theaters (below left) repeat the sandblasted-mirror cityscape on a smaller scale. Fluorescent backlighting behind the glass provides virtually all ambient lighting. Jelly-jar industrial sconces in the lobby recur throughout all circulation spaces.

Credits
Sundance 11 AMC Cinemas
Fort Worth, Texas
Owner: *Sundance West Partners*
Architect: *David M. Schwarz/Architectural Services*
Architect of Record: *Henningson, Durham & Richardson*
Lighting Consultant: *Coventry Lighting Associates—John D. Coventry, principal designer; Debra J. Gilmore, project manager*
Contractor: *Linbeck Construction*



Table Manners

Mikasa Lifestyle
Secaucus, New Jersey
Haigh Architects Designers:
Architect/Lighting Designer



ruck-repair depot in Secaucus, New Jersey, seems far removed rom the gracious-living corporate image of Mikasa, a tableware nanufacturer. Yet the prosaic structure has been remade as the ompany's prototype store—appropriately named Mikasa Life-tyle—which introduces both a collection not available at lepartment stores, and a new, continuously evolving corporate es-hetic shaped by Connecticut-based architect Paul Haigh.

Haigh's first charge was to make the industrial wasteland—rotting ruck chassis were strewn across the 20-acre site—environmentally afe. With cleanup completed, Haigh conceived the plateau the for-ner depot sits on as a table, which he set with giant cups and glasses of concrete and aluminum. "Champagne flutes"—actually rellises for ivy—are placed six inches from the wall and 175W netal-halide fixtures hidden in plantings cast dramatic shadows.

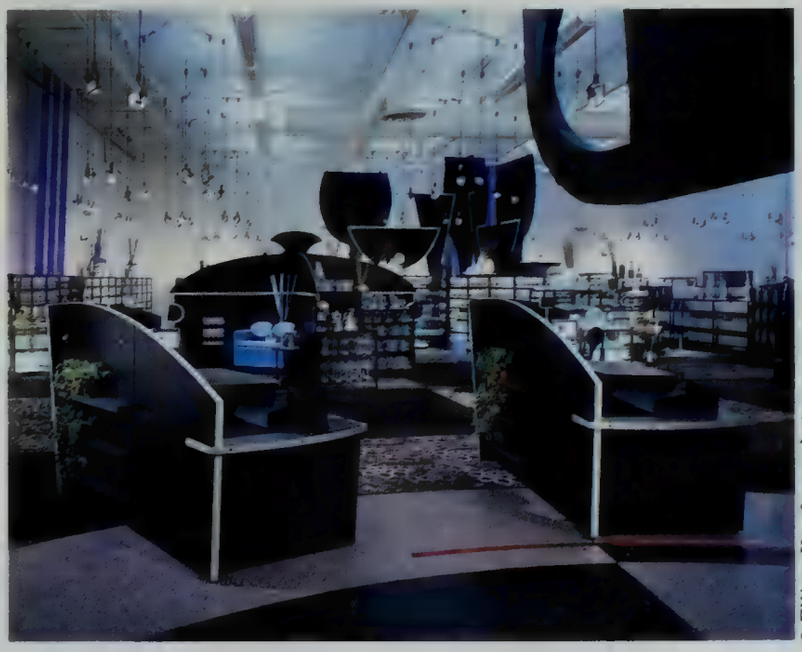
Haigh's renovation of the 26,000-square-foot space included remov-ng garage doors and tucking a glass store front and main entrance nderneath the giant teacup and saucer. He maintained the 25-foot eiling height of the steel-frame concrete box, designating 18,000-quare feet for retail display and the rest for inventory and storage. Alice-in-Wonderland-scale pieces recur inside in particleboard to sig-nal the four departments—glassware, flatware, dinnerware, and tea ervices. The interior lighting repeats Haigh's overall plan of an pen yet differentiated space: a system of 8-foot-long fluorescent ixtures composed of two warm daylight lamps and one cool-white amp is chain-mounted upside down to steel trusses at 12-foot inter-als to give overall, ambient light. To accent product displays, 90W PAR38 lamps hang, suspended on 48-inch wands, from the open-web oof girder; power is supplied by ceiling-mounted receptacles.

Display cases are wire structures with glass shelves. Haigh ganged our fixtures with 2-13WPLS each onto custom-designed bases that oll under the display cases. "The tungsten adds punch," explains Haigh of the additional glass sparkle. Haigh's eye for the playful ex-ends to his treatment of circulation routes: the entrance is marked by green fluorescent light and the exit is marked by red luorescents. Says Haigh of his overall design strategy: "It elimi-nates the need for signage." *Karen D. Stein*

Credits
Mikasa Lifestyle
Secaucus, New Jersey
Owner: *Mikasa/American Commercial*
Architect/Lighting Designer: *Haigh Architects Designers—Paul Haigh, Barbara Haigh, Nicolas Macri, Justin Bologna, project team*
General Contractor: *Collette Contracting*



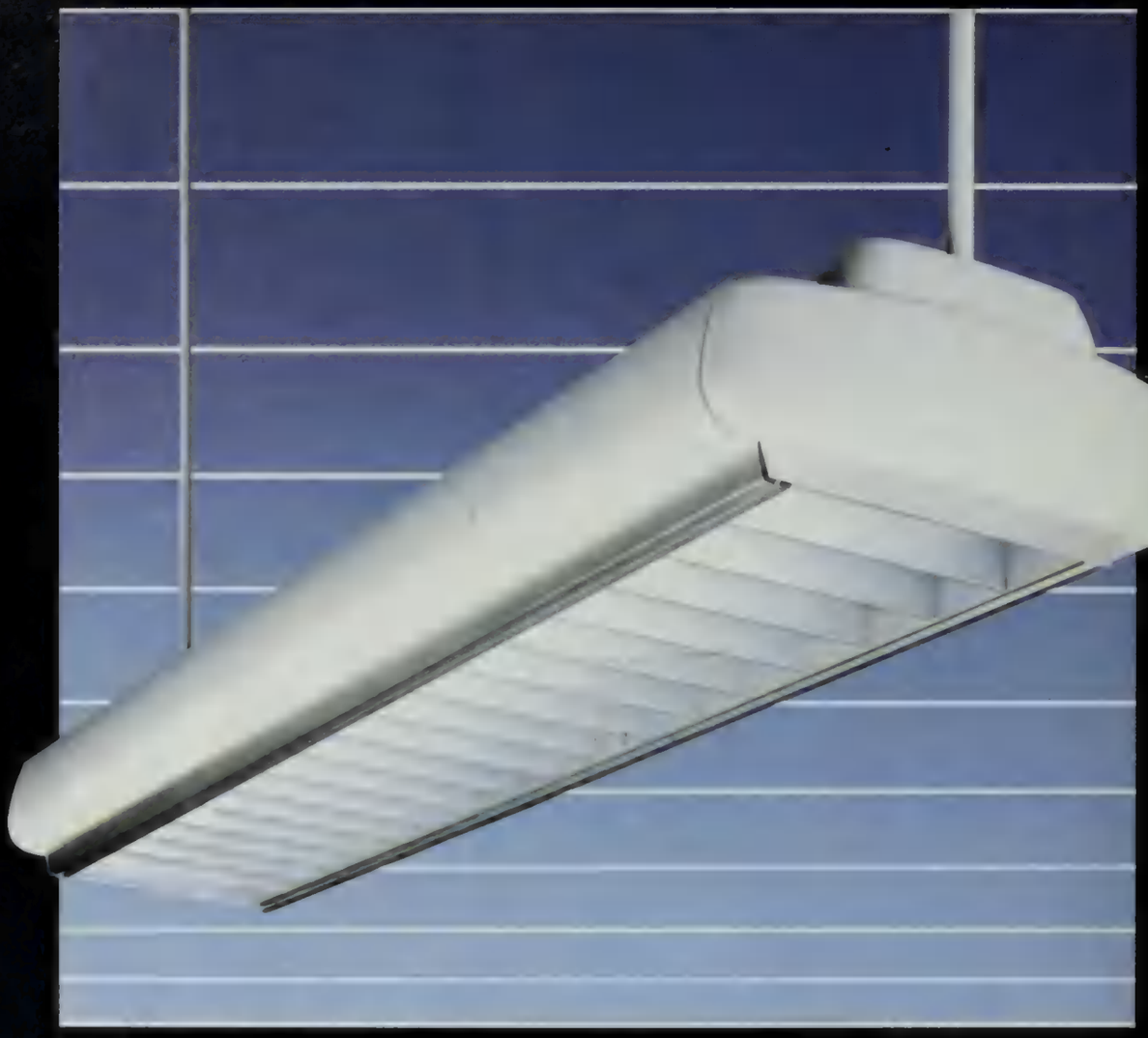




© Elliott Kaufman photos

Outside (opposite and left), a giant teacup and champagne flutes are dramatically lit, making the building into a giant sign. Inside, particleboard figures marking specific product groups are emphasized by direct lighting (above).

Specify Performance



Introducing . . . **TECHNÉK**, a direct/indirect luminaire designed around the recommendations of the I.E.S. RP24 for VDT lighting. Its performance is based on a unique perforated reflector design, which provides 35/65 indirect-direct distribution. The **TECHNÉK** maintains a 4:1 indirect ceiling distribution on 12" suspension, as well as a 55° louver cutoff for controlled uniform lighting direct. Columbia packages this performance in a fixture that is only 3 ½" deep and 10" wide.

COLUMBIA

USI LIGHTING

Circle 126 on inquiry card



419. Parking-deck fixture
he Decmaster product guide fea-
ures two lights designed for the
ecial needs of parking decks: high
ertical throw, a uniform level of
all and ceiling illumination, low
lare, and very durable construction.
hotometric and spacing data are in-
uded. Kenall, Gurnee, Ill.



420. Surgical-suite lighting
A color brochure describes Series 30R, fixtures that incorporate an asymmetric/symmetric lens said to represent the latest technology in the precise control of light directed to the surgical task and to the surrounding area, and to increase visual acuity within the surgical field. Neo-Ray Lighting, Brooklyn, N. Y.



421. Photoelectric control devices
. 30-page catalog describes the
itelighter line of wire-in and locking
pe photoelectric controls and acces-
ories, as well as electromechanical
nd electronic time controls. Line
oltage, load ratings, and other tech-
ical data are included. Fisher Pierce,
eymouth, Mass.



422. Customized pendants
"Architectural Standards in Lighting," a 22-page capabilities brochure, explains how a fabricator of custom-design lighting is applying its expertise to standard luminaires that offer dozens of metal-finish and stone-look acrylic-canopy options. Appleton Lamplighter, Appleton, Wis.



423. NYC-approved exits
n eight-page brochure describes
ne special requirements for emer-
ency lighting and exit signs
andated by the City of New York
epartment of Buildings and the
ureau of Electrical Control, and
lustrates all Dual-Lite products
at have been submitted and ac-
epted for use in New York City.
ual-Lite, Newtown, Conn.



424. Public-space lighting
An eight-page catalog highlights indirect wallwashers, recessed downlights, concealed spots, and other fixtures developed specifically for the illumination of important spaces, from cathedrals to air terminals. Aiming and lamping options are covered. Rambusch Lighting, New York City.

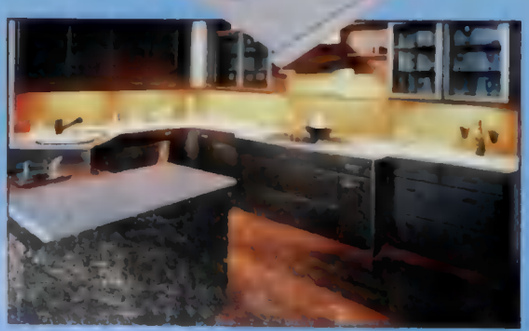
Continued on page 47

or more information, circle item numbers on Reader Service Cards.



We compared Mitélite™ to the competition and found it superior... every 'little inch'!







The difference begins with dimming:

- Fully dimmable for dramatic lighting schemes
- Utilizes any dimmer suitable for use with electronic transformers
- 11.5 volt integral electronic instant-on transformer means no flicker

Low voltage halogen is energy saving:

- Halogen is superior for color performance
- Halogen uses 65% less energy
- Mitélite halogen lamps last 6 times longer than incandescent lamps

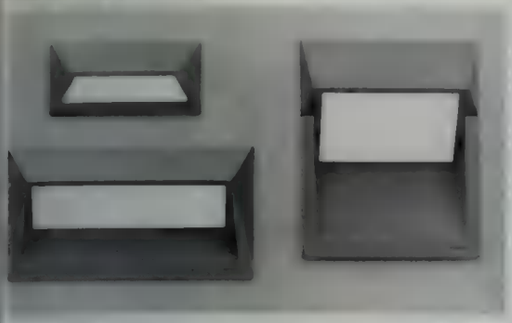
Mitélite™ is multi-functional:

- Available in 3 sizes: 9"-1 light, 18"-2 light 24"-3 light, and in black or white
- Perfect for home, office, school, industrial, work stations, anywhere!

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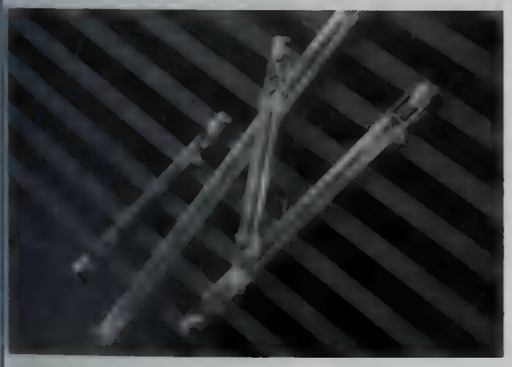
Circle 151 on inquiry card



123. Steplight family
LMS Series low-level lights come in three sizes with a uniform appearance, to maintain a look throughout an installation. Hooded housings are cast aluminum, listed for wet location; lenses are glass. Fixtures accept energy-efficient sources from low-wattage twin-tube fluorescents to 70W metal halide. Devine Design, North Kansas City, Mo.



124. Full-circle coverage
The CI-200 passive-infrared occupany sensor offers 360 degrees of coverage within a low-profile, unobtrusive housing. Features include adjustable time delay (from 15 seconds to 30 minutes), four sensitivity settings (down to a hand wave in a 500 sq ft space), and a built-in light-level sensor. The Watt Stopper, Inc., Santa Clara, Calif.



125. Lower-heat halogen lamps
A new double-ended linear halogen-IR quartz stage/studio lamp reduces energy use and heat levels by 30 percent, improving subject comfort and extending fixture life. General Electric Co., Cleveland.
Continued on page 47

For more information, circle item numbers on Reader Service Cards.



Circle 129 on inquiry card



Circle 130 on inquiry card

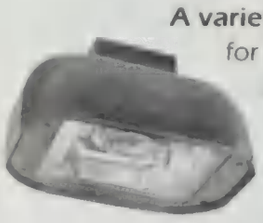


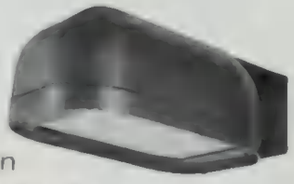
A FLOOD OF VERSATILITY

The Hydrel 7000 Series Architectural Lighting System

Exceptional versatility and design consistency from the new 7100 Series Architectural Lighting System from Hydrel, for HID sources to 175 watts.

A variety of mountings for ground, wall, pole, and ceilings provide high quality illumination for a wide range of projects.





High performance optical system provides distinct, uniform light patterns with sharp cutoff, as in the three outstanding examples shown below.

Internal glare shields provide visual comfort while maintaining clean fixture lines. Control devices are also available for soft light patterns.

The 7100 Series, constructed from the finest materials and thoroughly tested to withstand the rigors of the outdoor environment, provides that extra margin of reliability you've come to expect from Hydrel.

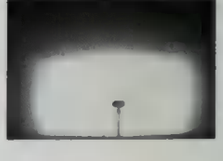
Horizontal Flood



Vertical Flood

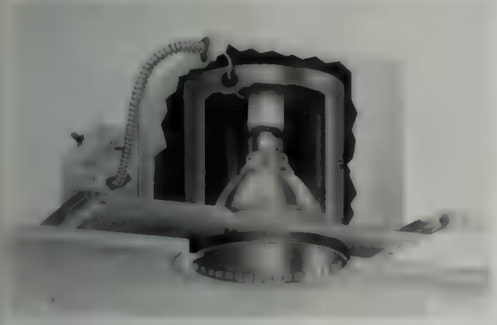


Horizontal Spot



HYDREL 12881 BRADLEY AVENUE · SYLMAR · CALIFORNIA 91342 · TEL 818/362-9465 · FAX 818/362-6548

Circle 131 on inquiry card



26. Thermally-efficient downlight
eveloped to meet Washington State's ringent 1991 Energy Code, the Air-Loc IC cessed downlight is constructed with a aled aluminum housing and a vapor-proof il gasket said to eliminate air leaks. Hous- g accepts most trim and function options, ch as black or white baffles, adjustable eballs and gimble rings, and wall washers. no Lighting, Inc. Des Plaines, Ill.





27. Automated fixture specs
Microsoft Windows-based design tool, Lu- en-Specifier allows the user to search a oad lighting-equipment database (27 firms the fall '93 update). Data can be called t by any of 50 characteristics, such as nction, materials, code classification, and oject type. Equipment may be evaluated viewing video images (top) and sections reens show fixtures from LSI, SPI, tecontrol, and Zumtobel). Program calcu- es obtained illuminances, locates fixtures, d renders the equipment in an architec- ral space. Version 1.0 is priced at $295. ghting Technologies, Boulder, Colo.
ntinued on page 49

more information, circle item mbers on Reader Service Cards.

STERNER
The Total Performer.



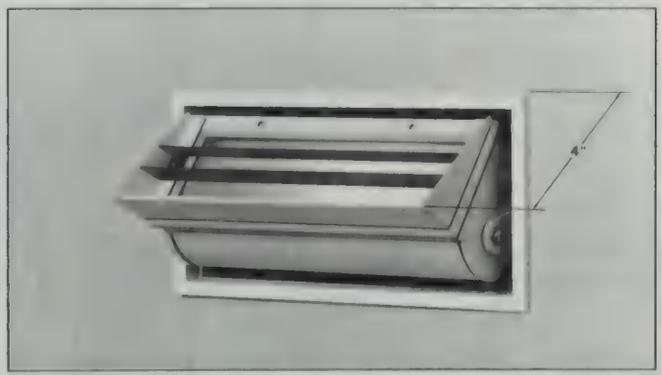
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San Francisco

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By far
the best way to meet
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The Americans with Disabilities Act (A.D.A.) requires that in public traffic areas, wall mounted luminaires between 27 and 80 inches above the floor not protrude more than 4 inches. **elliptipar**® A.D.A. luminaires help lighting designers meet this requirement with exceptional performance. With tungsten halogen or H.I.D. lamps from 70 to 150 watts, the unique **elliptipar** asymmetric reflector creates uniform, glare-free illumination. Designed for easy installation into most stud frame walls.

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FIFTY/FIFTY

Very High Efficiency Direct/Indirect Illumination

In the pursuit of high efficiency **Quality** illumination, the Fifty/Fifty embodies the latest computer aided luminaire design technology. The benefits are, a visually comfortable environment, the use of fewer luminaires, the reduction of energy cost.

- *Efficiency - 92.9%.*
- *Spacing to mounting - 1.9 to 1.*
- *Cross baffle shielding - 28°.*
- *Low glare direct component.*
- *Wide spread indirect component.*
- *Continuous parabolic baffles.*
- *60/40 light distribution.*
- *Low iridescence baffles.*
- *2 or 3 T8 lamps.*
- *Integral ballasts.*
- *Exact incremental hanger locations.*
- *Simple yellow relamping.*



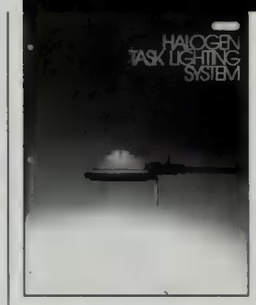


neonau

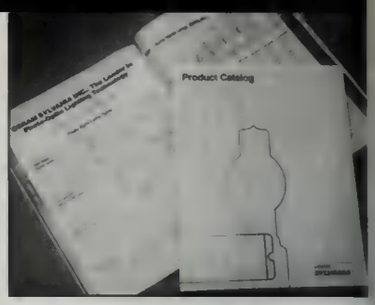
537 Johnson Avenue
Brooklyn, NY 11237
Tel: 718/456-7400 • Fax: 718/456-5492

Circle 135 on inquiry card

Product Literature/Lighting



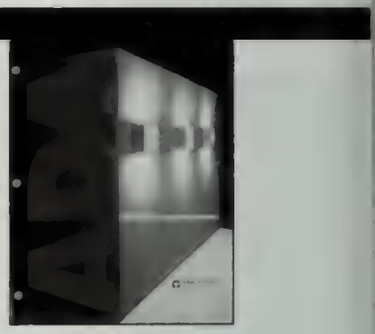
425. Halogen task lighting
A colorful fold-out brochure demonstrates how the Luxo Task Light System can supply a customized configuration for specific applications, illustrating various sizes of articulated, spring-weighted arms, three colors of shades, and different mounting options for desk-top, wall, and floor. Luxo Lamp Corp., Port Chester, N. Y.



426. Merged lighting lines
A brand-new, 160-page catalog covers a combined line of over 2,700 industrial, commercial, and specialt lighting products, and is said to include the widest selection of compact-fluorescent bulbs in the industry. A majority of the sources are energy-efficient. Osram Sylvania, Inc., Danvers, Mass.



427. Fiber-optic display
Signs, restaurant and club graphics, and retail displays are custom-made using illuminated fiber-optic images in a full spectrum of color and motion effects. Bright halogen-sourced light is visible from a wide, 90-degree, field of view. Luminous Designs, Cedar Grove, N. J.



428. Barrier-free hallway light
An eight-page color catalog feature a full line of ADA-conforming wall-mounted luminaires developed for building types, including schools an public-transportation facilities. Text summarizes Titles II and III as appl cable to lighting; drawings supply dimensions and clearances. Visa Lighting, Milwaukee.



429. Theatrical effects
A distributor of lighting for entertainment, architecture, and interiors offers a 52-page catalog that includes stage lighting, special-effects and "intelligent" lighting, video-projection equipment, tube lighting, fog and bubble machines, as well as dimming and control equipment. Color photos demonstrate lighting effects. SLD Lighting, New York City.



430. Marble sconces
A color brochure illustrates translucent, geometric fixtures made from natural-stone tiles, available in any of hundreds of marble and granite colorations. Sconces in both standar and custom designs are priced from $300. Halogen light sources are suggested. LineLites, Atlanta. ■

For more information, circle item numbers on Reader Service Cards.

Manufacturer Sources

For your convenience in locating fixtures and other products shown in feature articles, RECORD has asked the architects and lighting designers to identify their sources.

Pages 26-31
Health Central
Orlando, Florida
HKS, Inc., Architect
Craig A. Roeder Associates, Lighting Designer
Interior purple-neon lighting: Neotek. Other interior fixtures: Edison Price; Litelab. Landscape lighting: Hydrel. Exterior fixtures: Hubbell.

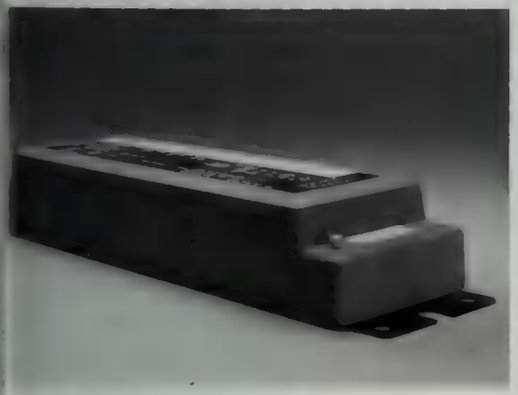
Pages 32-33
The Osborne House Apartments
New York City
The Rambusch Company, Lighting Design
Restoration of original 1888 lighting fixtures: Rambusch Decorating Co. Incandescent and compact-fluorescent lamps: General Electric Lighting.

Pages 34-39
Sundance 11 AMC Cinemas
Fort Worth, Texas
Coventry Lighting Associates
Track system: Staff Lighting. Fluorescent reflector: Litecontrol. Track-mounted framing projectors: Litelab. Public-space sconces: Stonco. Cyclorama strips: Altman Stage Lighting. Dimming system: Colortran. Neon contractor: Neotek.

Pages 40-41
Mikasa Lifestyle
Secaucus, N. J.
Haigh Architects Designers, Architect/Lighting Designer
Fluorescent ambient fixtures: National Lighting Products. Incandescent pendant fixtures and accent lighting: Halo Lighting. Metal-halide flood lights and bollards: Hubbell Lighting.

New Products

Continued from page 47



128. Electronic ballasts
The Ultra 3000 fluorescent-lamp ballast can be pre-set by the user to any one of four settings for optimum task light level and energy savings. It is designed for use with T8, T10, and T12 lamps in one-, two-, and three-lamp configurations. Canterra Electronics International, Inc., Boulder, Colo. ■

For more information, circle item numbers on Reader Service Cards.



Circle 136 on inquiry card



Circle 137 on inquiry card

Product & Literature Spotlight

Here are some building products, catalogs, brochures, and technical literature available in the architectural market today. To receive your copy of any of them, circle the corresponding number on the Reader Service Card.

Long Throw Blacklight Fixtures from Wildfire

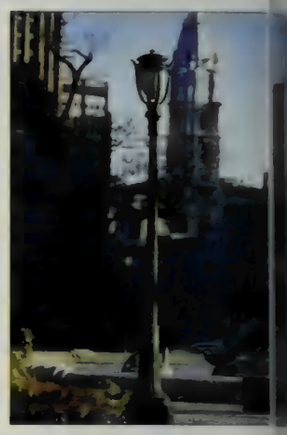


Wildfire's 400 Watt series U.L. approved long throw (up to 100') Blacklight (UV) fixtures define the "state of the art" in UV effects lighting for architecture & entertainment worldwide. The Wildfire unit produces the Blacklight effect with many times the brightness, intensity, & coverage of previously available technology. Fluorescent paints, specialty coatings & materials also available. UL Listed. Call: (310) 559-8907.

Wildfire, Inc.

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Sun Valley Lighting m
factures an extensive li
Standard & Custom
aluminum lighting po
fixtures in all period s
Our 50 years of desi
manufacturing experi
provide you with unexc
product quality. Our st
designers, engineers &
makers are here to
you. Our in-house fou
assures quality & pro
delivery at compet
costs.

Sun Valley Lighting

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Hanover Lantern Catalog Supplement '93



Hanover Lantern's 1993 catalog supplement contains a comprehensive selection of newly designed cast titanium/aluminum lighting fixtures which feature clear bent beveled glass, solid brass finials, spindles & candle clusters. Also included is a selection of decorative single & multi mailbox holders, post and decorative cast titanium/aluminum post base covers. 470 High St., Hanover, PA 17331. Call: (717)632-6464. Fax (717) 632-5039

Hanover Lantern

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4 DAY
BROADWAY LIGHT
DESIGN SEMINA

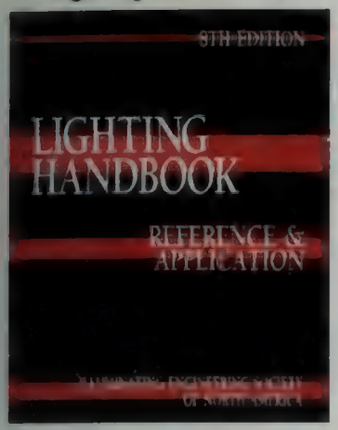
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Lighting Designers & Produ
Professionals discuss Lig
Design for a B'way Show, P
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Design, Light & Co
Projections & Special Eff
Getting a Show into the The
Touring, Television Adapti
much more! Opportuni
work hands-on with the
equipment & meet manu
turers. Cost $575. Includ
B'way show. 27 W. 20th
Ste.405, New York, NY
Phone/fax (212) 645-4977

B'way Lighting Master Cla

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IES Lighting Handbook



Lighting handbooks published by the Illuminating Engineering Society of No. America are acknowledged as the standard lighting guide. New 8 Edition contains the latest technology, terminology & acceptable lighting standards & applications in today's energy efficient environment. Highlights include the '93 codes & regulations, elements of design & the design process, illuminance selection procedures & software for use with lighting economic calculations! Expected publication date is 7/93.

Illuminating Engineering Society

Circle 142 on Inquiry card

In Grade Up Lights

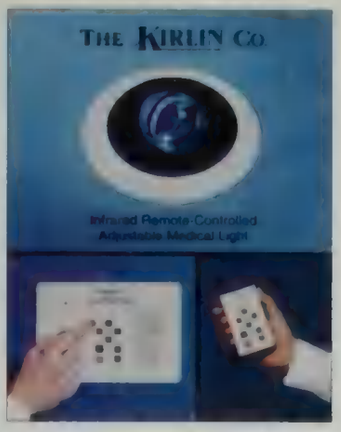


This 36 page catalog covers the new, innovative 9000 Series Ingrade Lighting fixtures. See how modular design makes a difference in performance, installation, maintenance, and durability. Available in a variety of configurations, this series accepts lamps to 175W HID, 250W incandescent. Architectural and landscape illustrations include recommendations for the most common applications. Hydrel, Sylmar, California

Hydrel

Circle 143 on Inquiry card

Kirlin Remote Controlled Birth Suite/Medical



Kirlin introduces the industry's first low voltage infrared remote controlled fully adjustable recessed lighting system for birthing suites, ICU/CCU, ER and patient examination areas. The 4-part system features one remote control, one wall control and two inconspicuous luminaires. 4000°K 150 watt source, 360° x 70° movement, 3 year warranty.

The Kirlin Company

Circle 144 on Inquiry card

Breakthrough Dimmable Compact Fluorescent Fixture



Edison Price Lighting introduced **the first specification grade dimmable compact fluorescent fixtures,** the Duplex-DM series. Equipped with an electronic ballast, the fixture provides a dimming range from 100% to 5%, controlled by standard fluorescent wallbox controls. Duplex/8-DM uses two 26 watt four-pin quad lamps; Duplex/7-DM is also available.

Edison Price Lighting

Circle 145 on Inquiry card

Back Issues of Record Lighting



Add to your files by ordering back issues of RECORD LIGHTING, the exciting color supplement to Architectural Record. The price per issue is only $3.50 each (includes postage and handling). Send check or money order to Architectural Record, 1221 Avenue of the Americas, New York, NY 10020. Attn: Back Issues.

Record Lighting

Circle 146 on Inquiry card

New StoneForms for the Site



Woodform, Inc. has introduced an all new product line of architectural precast outdoor lighting fixtures. Contemporary and traditional designs never before presented in this tough medium are offered as "StoneForms". Several surface treatments plus a choice of Incandescent, fluorescent, high intensity discharge, and low-voltage luminaires are available. All are UL approved.
Call: (800) 624-5091

Woodform

Circle 147 on Inquiry card

The Art & Science of Cold Cathode Lighting



This brochure answers many of the most frequently asked questions about cold cathode as a functional lighting source, starting with how it differs from neon. The brochure is for use by professional lighting designers & engineers when specifying cold cathode. Several color photographs of cold cathode installations & neon art are included. For further assistance call Eric Zimmerman: (213) 581-8800 or fax your ideas at (213) 581-7971.

Architectural Cathode Lighting, Inc.

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Lighting Services Introduces New Condensed Catalog



New 16-page condensed catalog features an overview of LSI's extensive line of track, lighting fixtures & accessories. The catalog illustrates vibrant color photos of the company's most popular fixtures including the Spotlight, Low Voltage & Compact Fluorescent Series as well as CAD drawings of LSI Track & mounting devices. There is also a preview of LSI's newest fixtures, the QM200/QM500 Series, wall wash units & the FO70/FO150 Series, Fiber Optic Systems.

Lighting Services, Inc.

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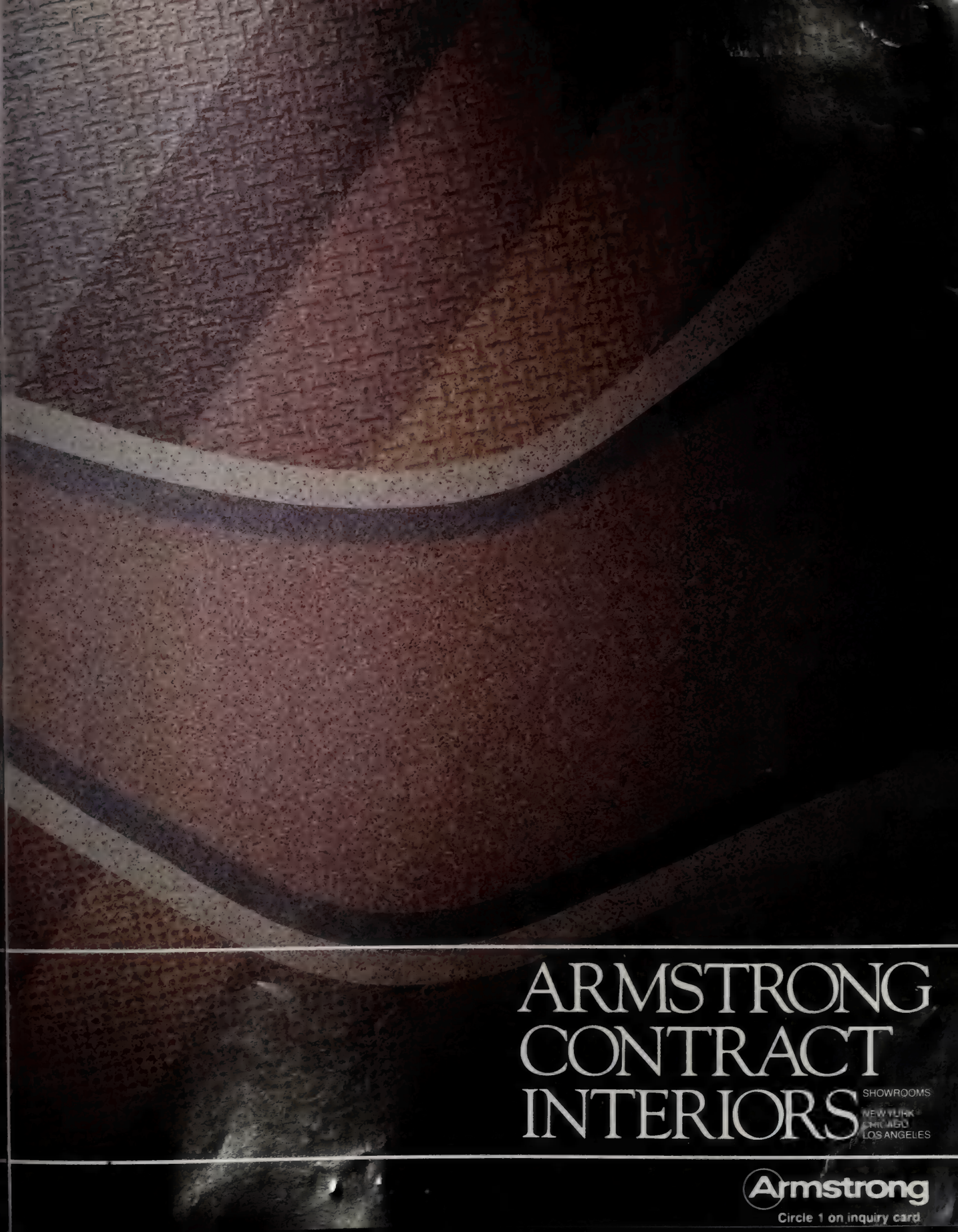


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Notes from Behind the Scenes



Early this spring, a mind-stretching experience began unfolding at ARCHITECTURAL RECORD. It has been a summer of intense strategic planning which will ultimately involve the entire staff of our magazine, its readers, and its advertisers. The experience can best be compared to a remark made by the distinguished television producer Fred W. Friendly. He said. . .

"Our purpose is not to make up anyone's mind, but to open minds, and to make the agony of decision-making so intense that you can escape only by thinking."

Starting in early May and proceeding through August, a series of meetings was held for the purpose of writing a definitive plan for the future of this magazine involving every aspect of what we produce. We're looking at how the magazine can be improved, expanded in its usefulness, even transformed into other useful products—print or electronic, all based on the needs expressed by our "customers"—you, our readers, and you, our advertisers. Above all, it was agreed that it must be a plan that management and staff can *unanimously* endorse and execute.

Attending our meetings were people from editorial, marketing, circulation, advertising sales, production, and accounting. Twelve in all . . . but our titles were left outside the meeting-room door. One person, one vote. Total agreement was our goal. The first order of business was to draft a precise and clear Mission Statement. To start the process, each attendee was asked to submit his or her thoughts on the matter in writing. We all assumed it would then be an easy task to combine our ideas and reconcile the differences. And, with that out of the way, go on to the planning stages.

We were mistaken. It wasn't that easy.

However, weeks later—with the 4th of July looming on the horizon and having more than once recalled a group that also met through a long hot summer (in Philadelphia)—it was agreed by all concerned to adopt the following Statement. Every word having been weighed, every thought examined, and every resource considered . . . over and over again, I want to share it with you:

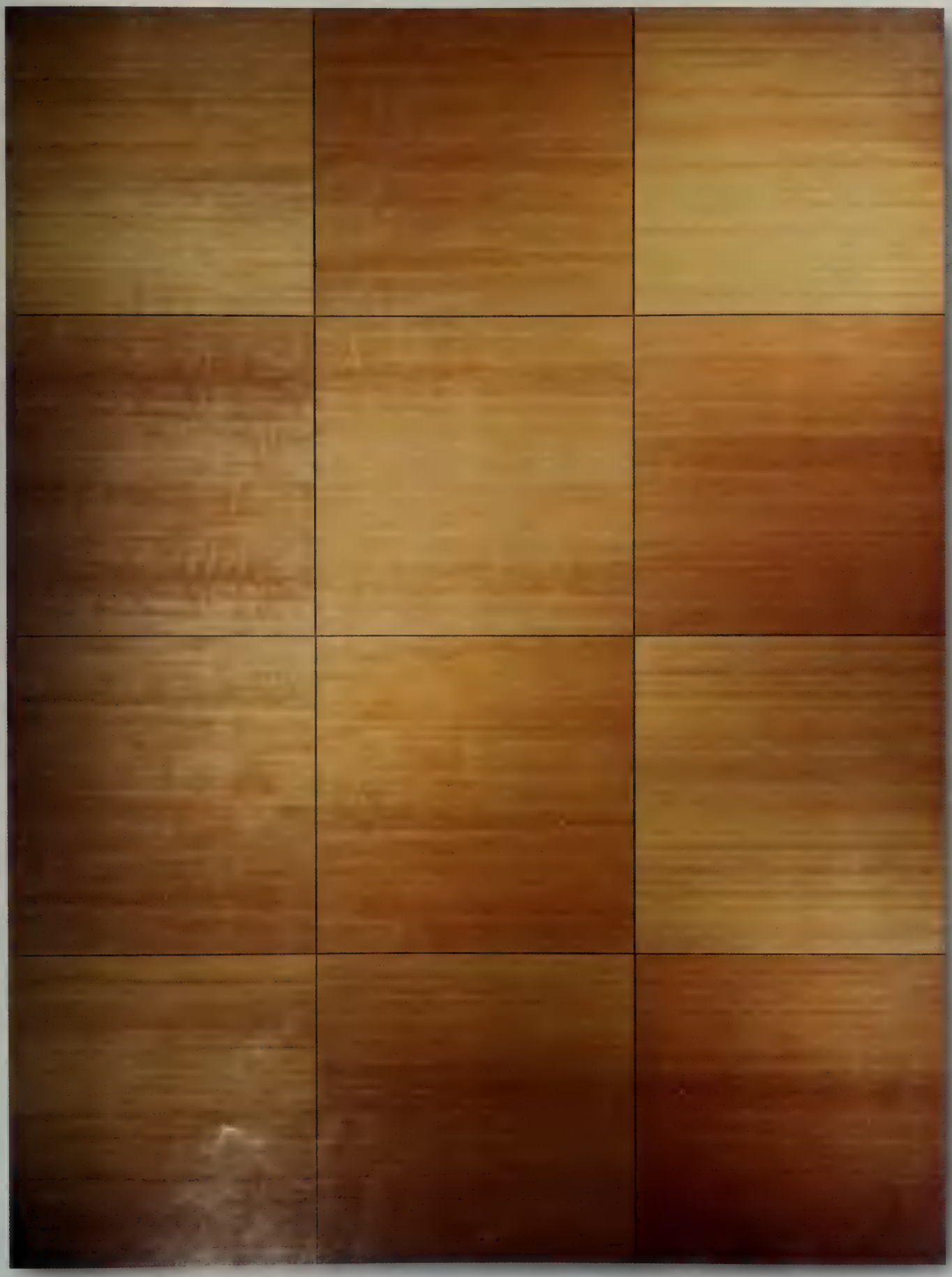
The mission of ARCHITECTURAL RECORD is to provide original, reliable, and useful information to the architectural marketplace worldwide, in timely and easy-to-use formats which:

- *Create an industry-wide forum.*
- *Set the standards for excellence in architectural design.*
- *Present insights and practical solutions for current challenges in design, building construction, and business practice.*
- *Build success for our readers, our advertisers, our associates and investors, and ourselves.*
- *Establish the authoritative record of architecture.*

With this commitment in hand, we are in the process of rethinking every part of what we do. Over this fall and winter, I will use this space to tell you how we plan to meet these goals and fulfill the promise. We hope you will approve.

Joseph C. Smith III.

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Infrastructure Issue

You did a nice job of wrapping up a package of diverse projects [RECORD, June 1993]. There's no question that architects can take a more significant role in the regional planning of infrastructure-related work if we stand up and ask for it. Since the demise of "city planning" in the '70s, there's apparently no one else around to fill the void. It looks as if some architects are beginning to figure that out.
David A. Fey, Architect
Director of Communications
Ellerbe Becket

The disorganization of the built environment is perpetuated, in part, by the fragmentation of the building process into the separate disciplines of architecture, civil/structural engineering, landscape architecture, and biology. Architecture is just one part of the technological system that has intercepted natural systems to create a condition where it is no longer possible to separate the built from the natural.
Gary Strang
Architect/Landscape Architect
San Francisco, California

Pruitt-Igoe Remembered

I am appalled by the Edison Terrace project featured in RECORD [July 1993, page 91]. Did you even look at the photographs you showed? It seems to me that Arquitectonica and your editors have learned absolutely nothing from the failures of social housing of the past. Edison Terrace appears to have more in common with Pruitt-Igoe than with housing appropriate for low-income families.

"Pilotis" and "unique design" are two of the most inappropriate characteristics for family housing for low-income residents. Pilotis remove dwelling units from the ground contact that is essential to family life with children; unique design stigmatizes low-income residents. Housing for low-income families should blend into and be indistinguishable from the balance of the community.

Even though Pruitt-Igoe has been demolished, St. Louis still has relics of the failed social-planning concepts which we inherited from Le Corbusier and his disciples. You might be surprised at the names of the architectural luminaries associated with these failed ventures.
William H. Gantz
Architect
McCormack Baron & Associates, Inc.
St. Louis, Missouri

In poor urban areas, ground-floor apartments are the least secure and the least desirable, so it makes more sense to put cars on the ground floor rather than people. As for the building's unique design stigmatizing low-income families, from all accounts the residents have taken great pride in the building. Perhaps the best proof of that is that it is fully rented and now has a waiting list. C. A. P.

Corrections

The Federal Medical Center in Butner, North Carolina [RECORD, May 1993, page 94] should have been credited as follows—Executive Architect: Middleton/McMillan Architects, Charlotte, North Carolina; Design Architect: Odell Associates Inc., Charlotte, North Carolina.

Lighting Services Inc. should have been credited with providing lighting fixtures for the Holocaust Memorial Museum [RECORD, July 1993, page 109]. ■

September 14-October 29
National Institute for Architectural Education exhibition of student designs from NIAE competitions. Call 212/924-7000.

September 18-19
Exhibition and sale of signed original drawings and sketches and limited-edition prints by over 100 architects, including Gehry, Ando, Meier, and Predock, at Southern California Institute of Architecture, Los Angeles. Call 310/574-1123.

September 27-October 10
World Congress 1993 in Helsinki, Finland, on "Cities for Tomorrow—Directions for Change." Phone 358-0-1488-8412; fax 358-0-148-6672.

September 29-October 3
National Preservation Conference, St. Louis, on "The Challenge of Livable Communities: Revitalizing Urban Environments through Historic Preservation." Phone 800/944-6847 for details.

October 9-11
Congress for the New Urbanism, "The Neighborhood, the District, and the Corridor," Alexandria, Va. Andres Duany/Elizabeth Plater-Zyberk, coordinators. Call 301/948-6223 for details.

Competitions

- Boston Society of Architects Design Honor Awards Program, for architects who have designed a project in Massachusetts. Submission deadline: September 27. Call 617-951-1433 ext. 221.
- American Wood Council design competition for residential and nonresidential projects, new and remodeled, completed since January 1990. Submissions deadline: October 8. Call 202/463-2760 or fax 202/463-2791.
- Name a Ceiling Tile and win $25,000. USG Interiors Inc. wants to rename its X2000 ceiling panel. Deadline for entries: October 31. Call 800/950-3839. ■

ARCHITECTURAL RECORD

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Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

Executive, Editorial, Circulation and Advertising Offices: 1221 Avenue of the Americas, New York, NY 10020.

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ARCHITECTURAL RECORD (ISSN0003-858X/93) published monthly by McGraw-Hill, Inc. Second-class postage paid at New York, NY and additional mailing offices. Postage paid at Montreal, Quebec, Canada.Canada Post International Publications Mail Product Sales Agreement No. 246565. Registered for GST as McGraw-Hill, Inc. GST Number R123075673

Postmaster: Please send address changes to: ARCHITECTURAL RECORD, Att: Fulfillment Manager, P. O. Box 566, Hightstown, NJ 08520. This issue is published in national and separate editions. Additional pages or separate editions numbered or allowed for as follows: Eastern Section 17E.

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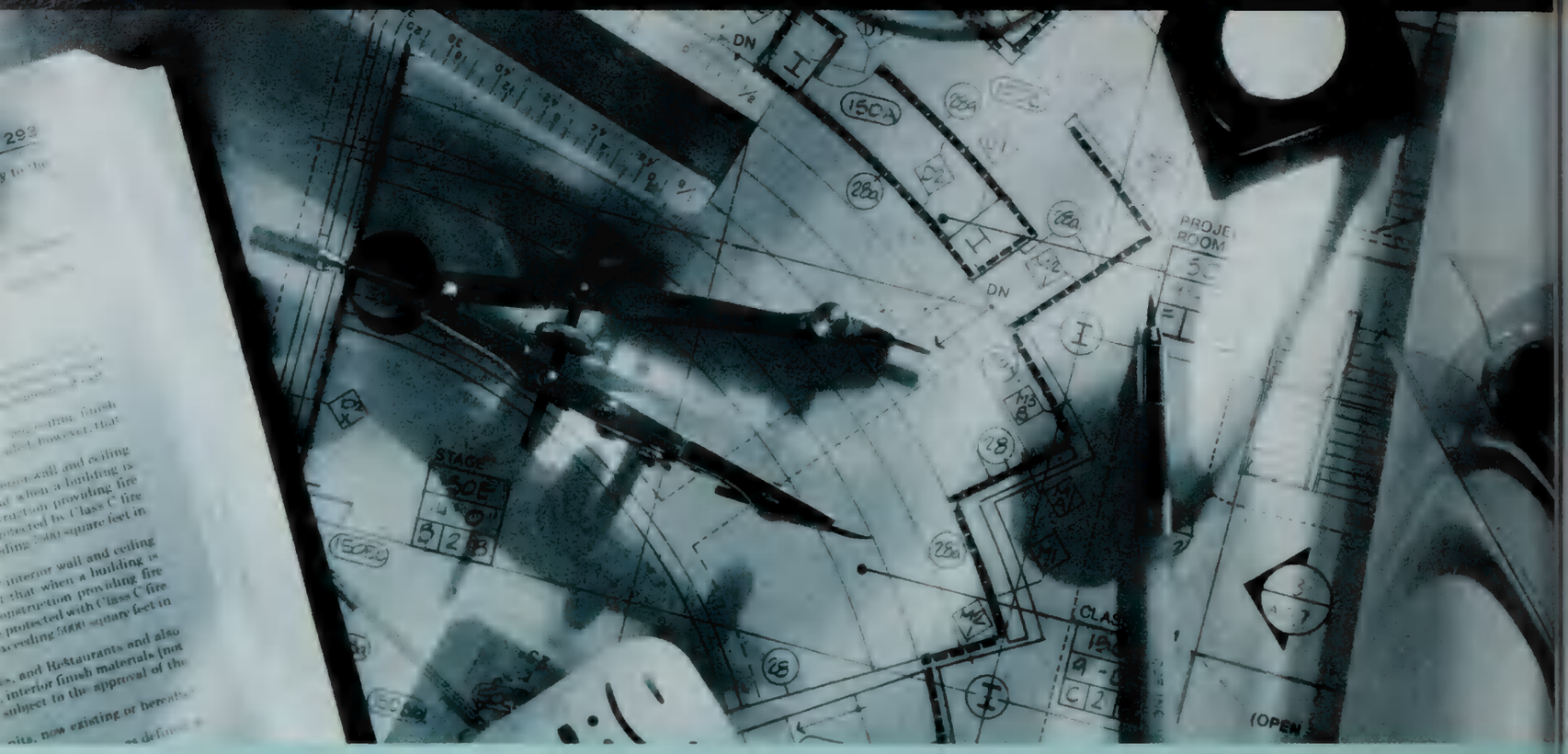


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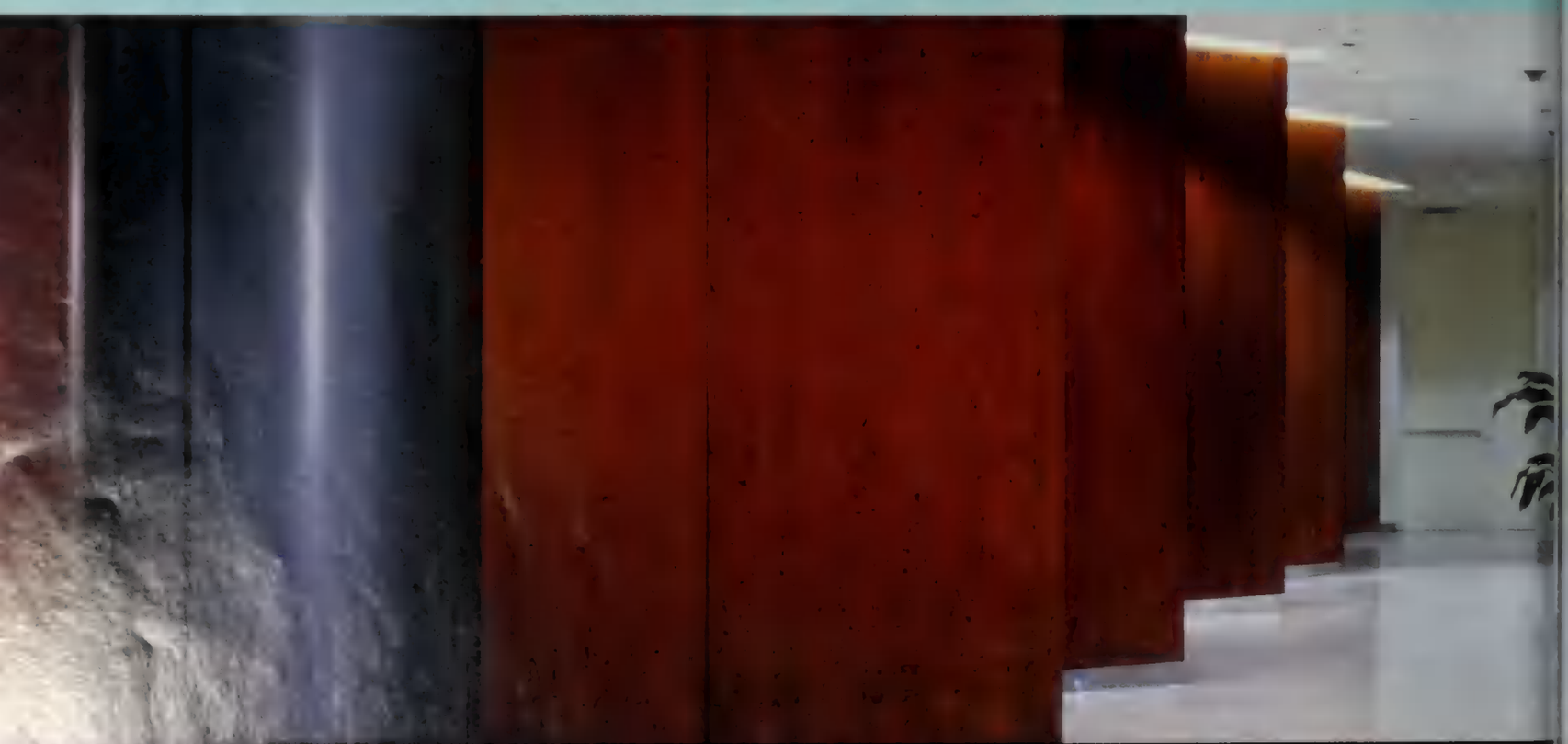
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Barbara Karant, Karant + Associates photo

Valerio Associates devised a fast-track low-budget solution for U. S. Robotics. Page 84.

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Cover: Jil Sander Paris
Paris, France
Gabellini Associates, Architect
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Next month:

Building Types Study 710 Environmental Re-use
Invited by RECORD, four architects have developed imaginative solutions for a new lease on life for the Alameda Naval Air Station near Oakland, one of over 100 military bases slated for closing. The opportunities for architects inherent in the pending closings are further covered in an in-depth introductory feature.

Also in October:

Art Center at Nîmes, France, by Norman Foster.

Davis Museum, Wellesley College, by Rafael Moneo.

Community Church, Washington, D. C., by Susan Reatig.

Technology: Wall Detailing.

Pity the poor pedestal. . .

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New Delhi Armageddon

A frightening story appeared this summer in *The New York Times.* A report from New Delhi by Edward Gargan gave a catastrophic profile of a city of over 9-million souls that had essentially ground to a halt. It was a city whose infrastructure had failed, where trash collection had so broken down as to leave garbage rotting in 100-plus-degree temperature. There was no electricity, no water for a large part of the population, phones were not operating, housing and shopping was being erected with little or no regard for safety codes and standards, and streets were so overcrowded and traffic so chaotic that over 2,000 had been killed or injured in road accidents in the first six months of 1993. It is a glaring and tragic picture of growth run amok, a caricature of the view that cities are a society's highest form of civilization.

Mexico City, Cairo, and, closer to home, sections of such cities as Los Angeles, Philadelphia, and New York all have symptoms that if not addressed by politicians, industry, and the design professions, may provoke the same end.

Trojan Horse

Retail construction has been picking up, according to projections by F. W. Dodge, and while any signs of building activity are cause for rejoicing, the direction taken by this particular phenomenon bears a closer look. I refer to the supermarkets and megamarkets—the Stop & Shops, Pathmarks, Wal-Marts and Kmarts—whose newest policy is to expand back into the nation's older cities which they had so blithely abandoned for the suburbs nearly two generations ago. The concept seems commercially sound, and the opportunity to revive the inner city is terrific. High-density populations, the reasoning goes, is where the concentrated revenue is, and what better way to increase volume on a notoriously low-markup business than to move back into the cities, with infrastructure in place and with access to low-priced real estate left on the market by the current downturn, often in choice locations in historic districts. But there the good news ends. A sensitively recycled old warehouse brings new life to the community. Unfortunately, several of the supermarket and discount chains have resolved to erect great sprawling megastructures, out of scale with their neighborhoods. Yet on the principle that an 800-pound gorilla can sit where it wants, few city fathers have had the courage to speak out and call for land-use and design controls. Indeed, they often have offered chains free land as an incentive. There are other hazards: low prices drive mom-and-pop stores out of business, destroying the commercial texture of the street (the argument that lower prices give families more discretionary income on which to patronize surviving local merchants has yet to be proven); out-of-town traffic demands parking, always an urban-design and ecological challenge. The invasion has spawned anti-superstore movements to protect dwindling historic districts in the nation's smaller towns, especially of New England.

There is a sense that the chains' window of opportunity is small, that as soon as prices begin to climb back, the returns on the investment will not be worth the venture, and the superstores will again leave town.

I therefore continue to invite our readers, however devoted to the daily task of getting the work out, not to lose sight of critic Robert Campbell's dictum that the "environmental crisis of the '90s is a crisis of the loss of community."

Stephen A. Kliment

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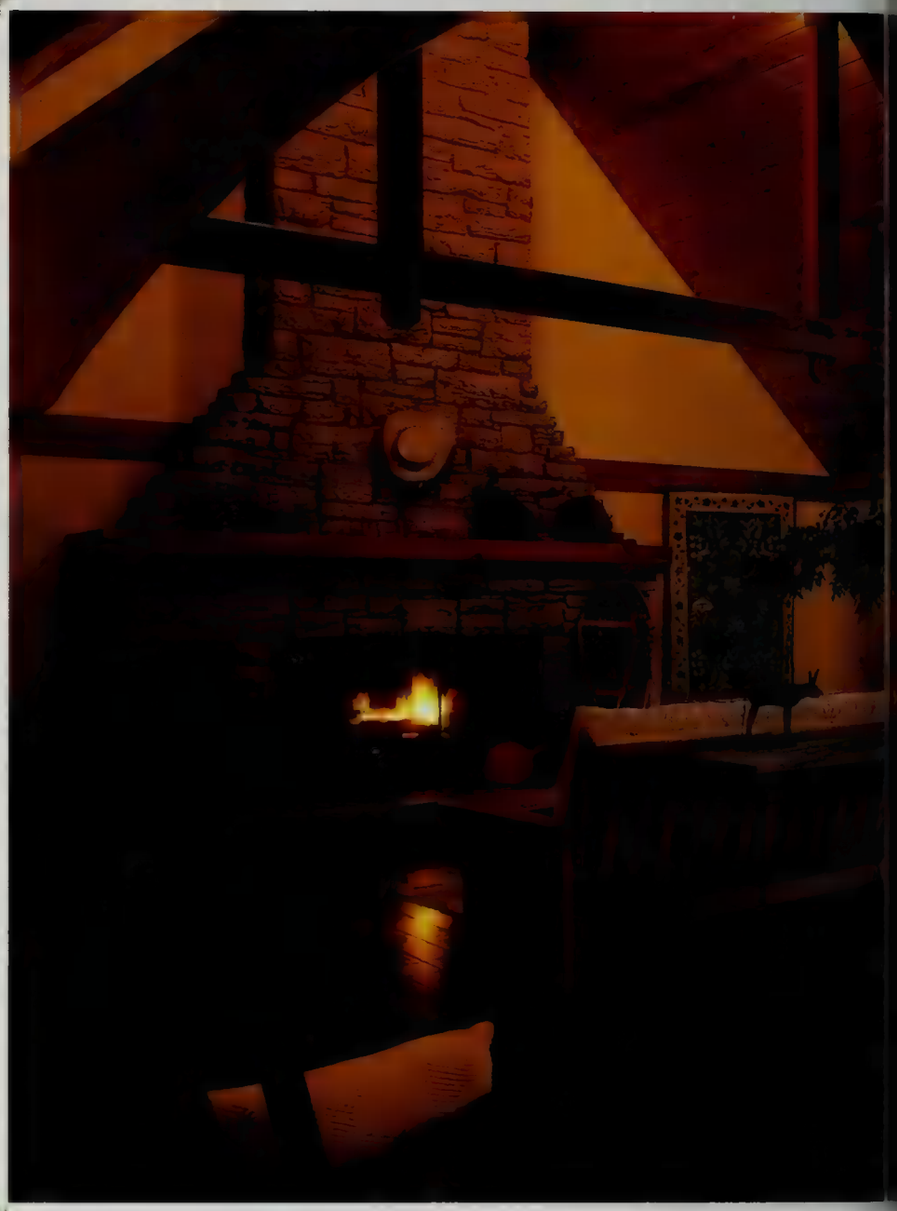
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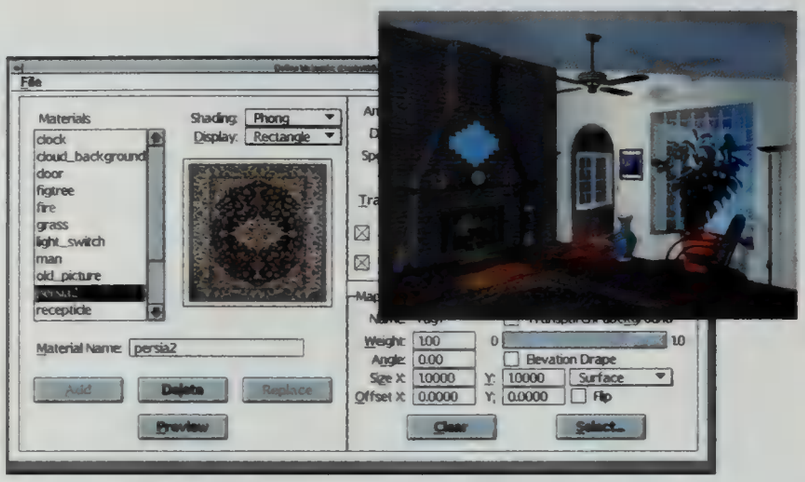
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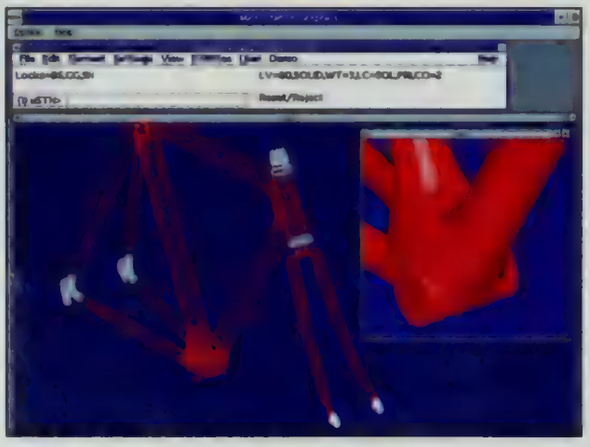


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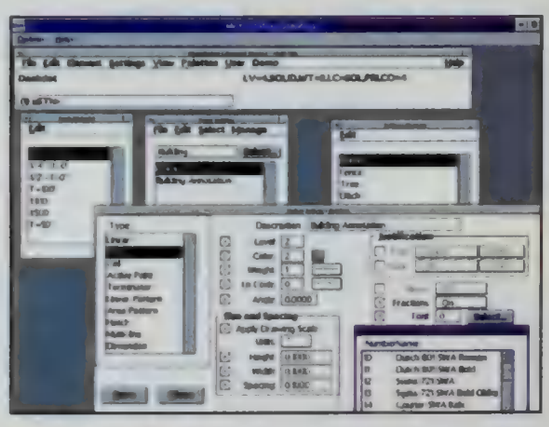


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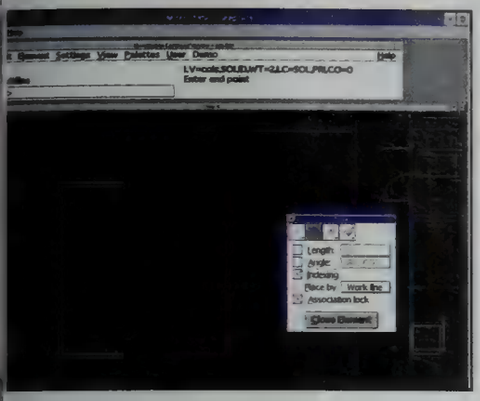
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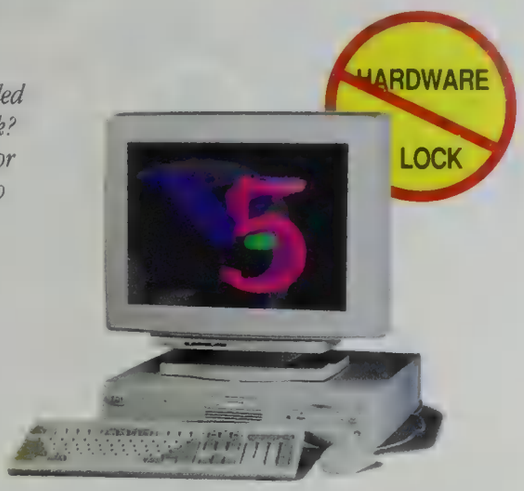


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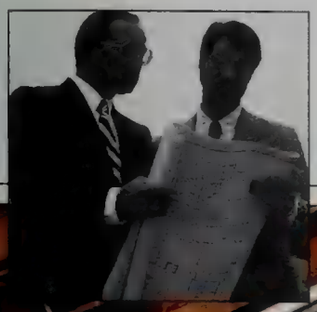
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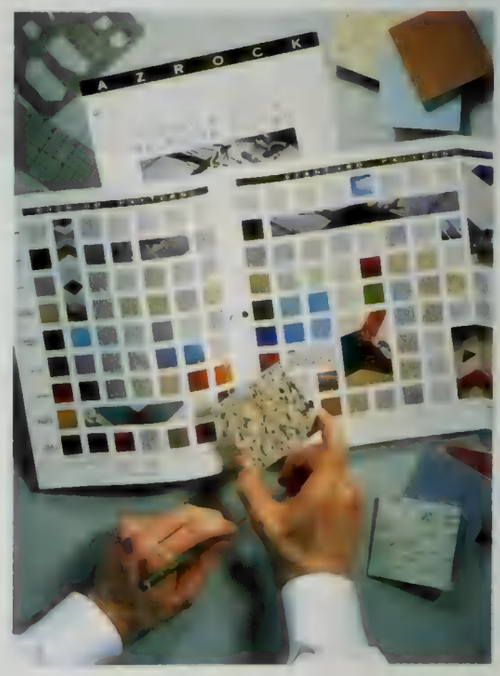
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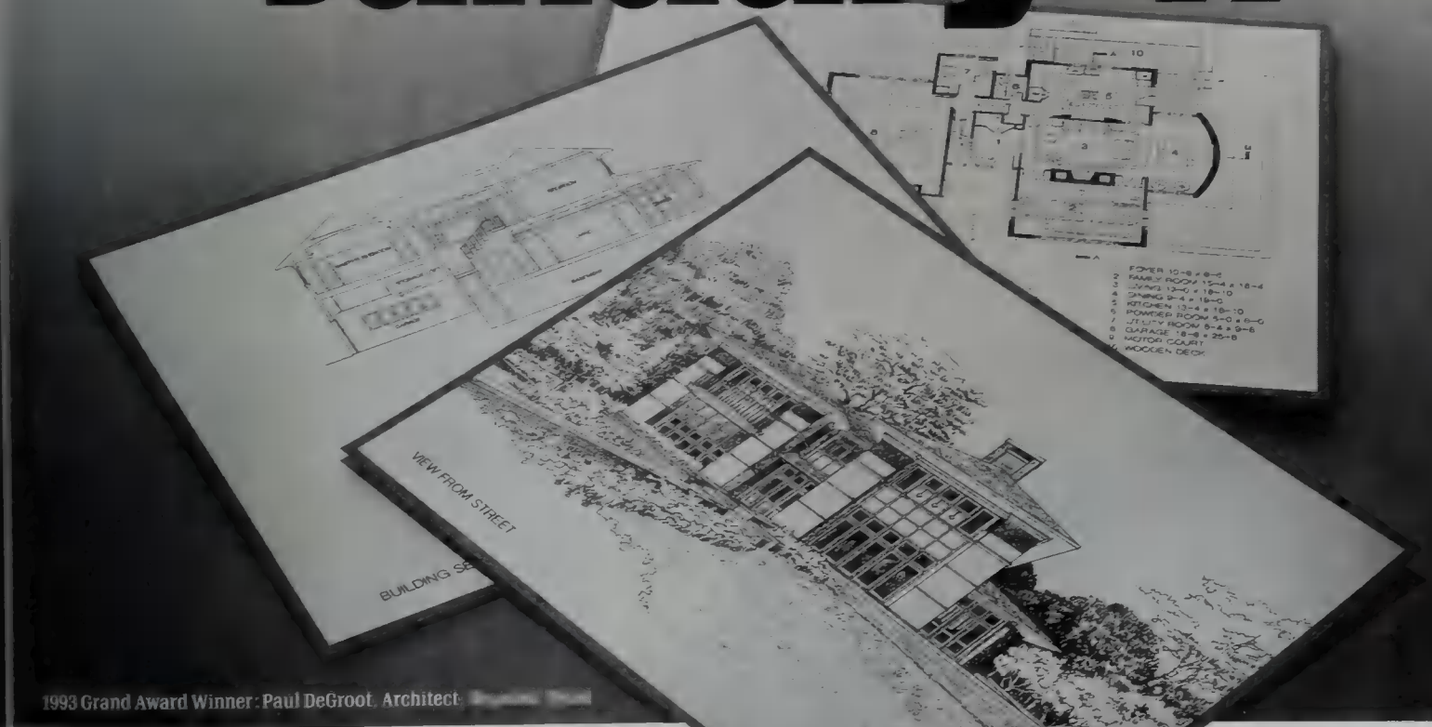
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MORE THAN YOU EXPECT

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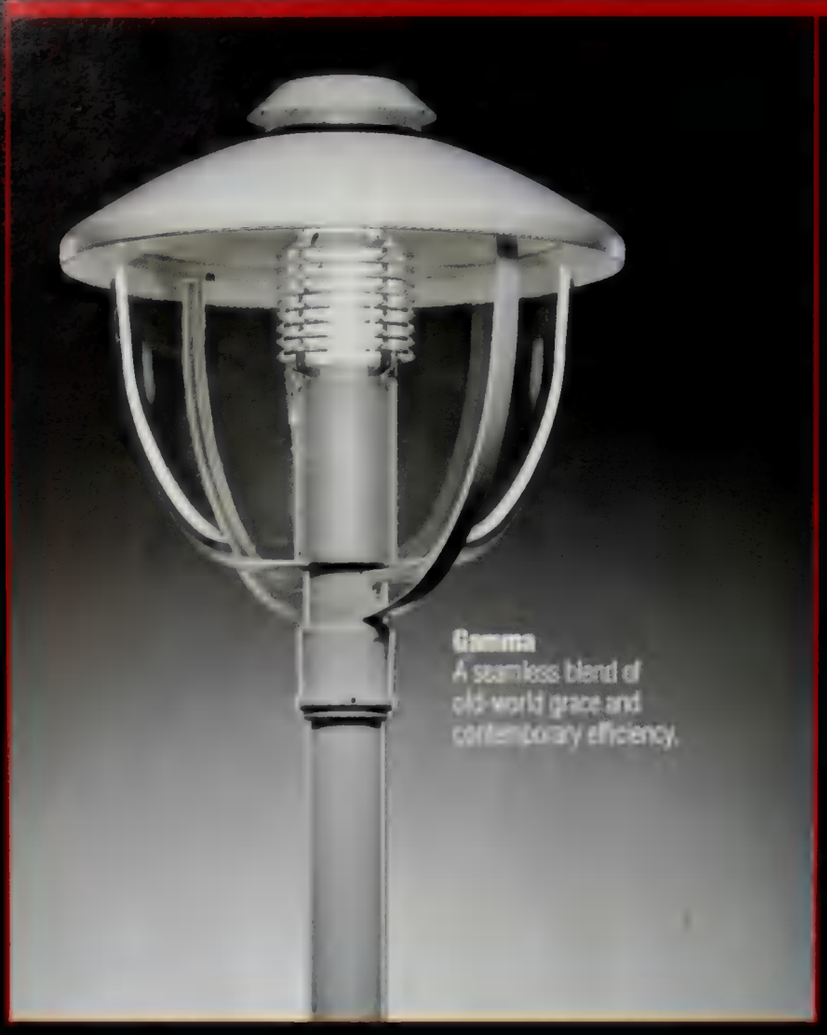
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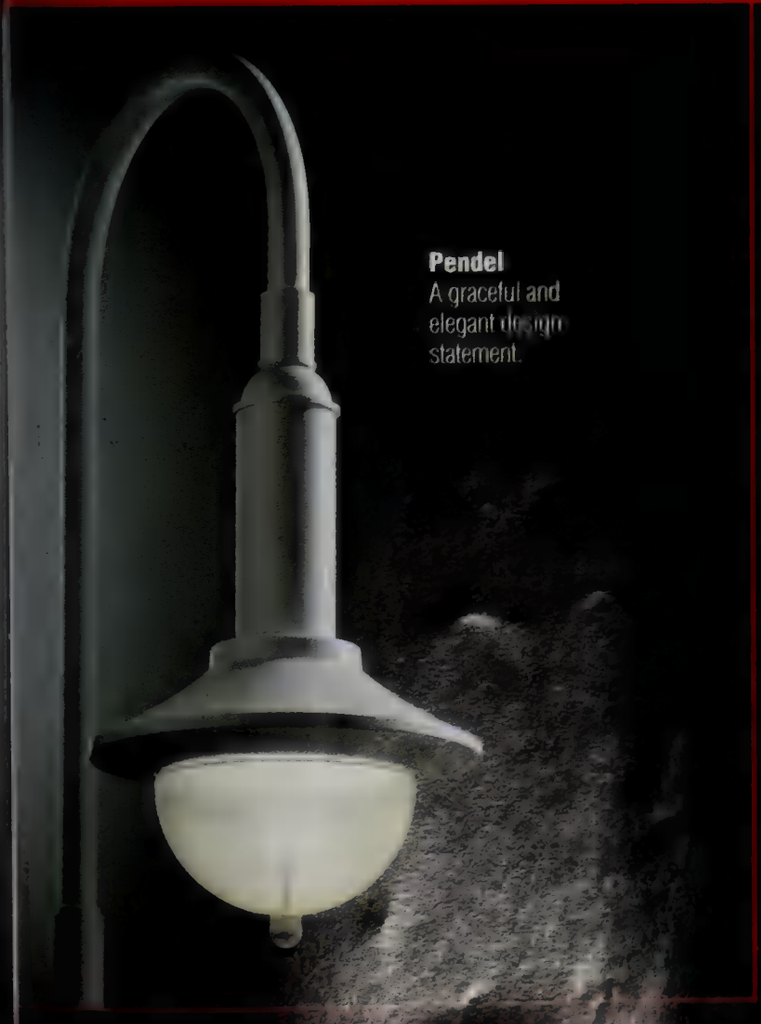
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Berlin

Foster Wins Reichstag Finals With Entirely New Program



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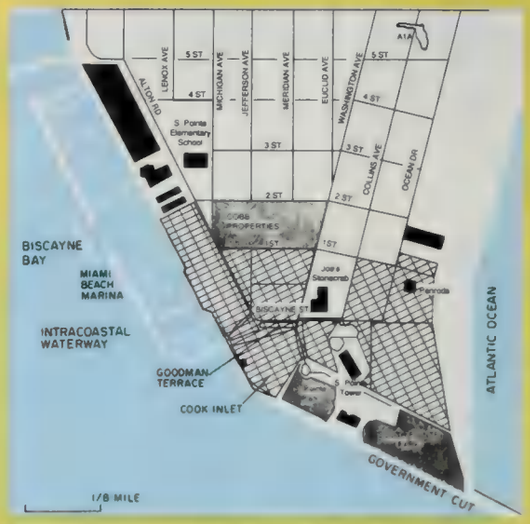
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Sir Norman Foster and Partners has won the second and final phase of the competition to redesign the old Reichstag interior to house the new parliament of the united Germany. The finalists' designs were based on a new program that relied more on the potential of the old building than on the space needs of government, as the earlier one had done. The core of the Foster design restores the *piano nobile* to the prominence it had when the classical structure was built for Germany's first parliament shortly after the country was unified in 1871. Set with an additional emphasis on democracy: this will be the level of entry for everyone from MPs to official visitors to general public (3).

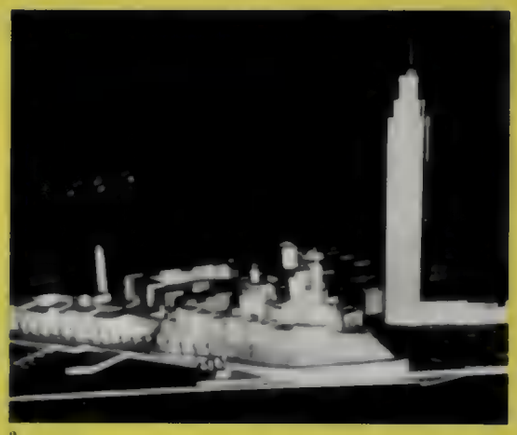
The lobbies will be reopened and the soaring inner courtyards recreated. The assembly, entered from this level but sinking in tiers to ground level and rising to the roof, will be glassed in to connote an open and accessible parliament (1). (Soviet bombing damaged the building in 1945 and, after the government left for Bonn in 1949, interiors were stripped of ornament and stuffed with new floors and labyrinths of offices. Circulation became indecipherable.)

In addition, the original Reichstag dome will be replaced with a more modest pillow-shaped translucent roof surrounded by terraces, creating one of the few panoramic viewing posts in the city (2). The second-floor perimeters will house the offices of the parliamentary president, with the party factions on the skylit third. The Foster design is scheduled for 1998 completion, when the government plans to move back to Berlin. ■

Eleven Architects Sketch Visions For an "Empty Tableau"



1



2



3



4

1. South Pointe site (gridded area)
2. Bermello Adjamil & Partners
3. Sandy & Babcock, Inc.
4. Arquitectonica and STA Architects
5. Duany & Plater-Zyberk
6. Robert A. M. Stern, Architects
7., 7a. Michael Graves, Architect
8. Abdel Wahed El-Wakil
9. Sieger Architectural Partnership
10., 10a. Zscovich, Inc.

South Pointe—the southernmost tip of Miami Beach—is 70 acres between beach and bay, much of it scrubby and overgrown with weeds, and little more than an empty tableau. Yet Thomas Kramer, the German financier who owns just about half of the land, knows that it is prime property, "some of the finest real estate anywhere." Most of the land faces water—either the Atlantic Ocean or the Government Cut ship channel of Biscayne Bay. It is just south of the Art Deco National Historic District.

Earlier this summer, Kramer hosted a charrette for South Pointe, organized by Miami architects and town planners Andres Duany and Elizabeth Plater-Zyberk. DPZ, as the firm is called, has elevated the charrette to a fine art over the past decade, creating more than 50 town plans using the intensive design-session approach. For this charrette, DPZ drew in eight other architectural firms from Miami as well as Abdel Wahed El-Wakil, London; Robert A. M. Stern, New York City; and Michael Graves, Princeton, N.J., and assembled them under the season Joe's Stone Crab. For six days and six nights, more than 100 architects and designers worked on plans for Kramer's 35 acres, as well as the city-owned property around it.

At the outset, Kramer, who has cut a lively and sometimes controversial swath through Miami, exhorted the architects to be as creative as possible as they designed a neighborhood with hotels, housing, offices, shops, and a marina—and to design memorably. Thus, the proposals ranged from hard-edged to romantic, from audacious to subtle. And when all was done, Plater-Zyberk (she ran the charrette while her partner and husband Duany worked on a proposal that involved developing urban-design guidelines) said the results ranged "from the practical and familiar to the visionary and expansive."

Because it was, in some unformed way, a competitive charrette, many of the drawings were intended to dazzle—Kramer or the general public—with images so seductive as to be instantly saleable. And yet, such images are empty gestures unless they illustrate actual ideas. The challenge of South Pointe is to turn it into a real place, not just another ersatz development with fabulous marketing brochures and no architecture or substance at all; into a real neighborhood—whether it is separate and distinct from the Art Deco District or a seamless continuation, if in differing architectural styles. That is not necessarily an easy decision. And in the face of so many mesmerizing drawings, there is always a powerful temptation to succumb to ersatz glamor or architectural gimmickry, to build a boulevard where a simple street would suffice or a mountain when all that is needed is a molehill.

Plans wrought in previous years pointed in that direction. In 1973, the city of Miami Beach approved a bulldozer-era redevelopment proposal that would have criss-crossed the island with canals; a decade later came South Pointe Towers, the first—and only—building in a scheme to fill the tip of the beach with walled-off high-rises. In 1990, Marriott Corp. proposed a huge hotel that would have subsumed much of the southeastern corner of the beach, bringing Ocean

A week-long charrette inspires designs from hard-edged to romantic, audacious to subtle, for 70 acres of Miami Beach real estate.



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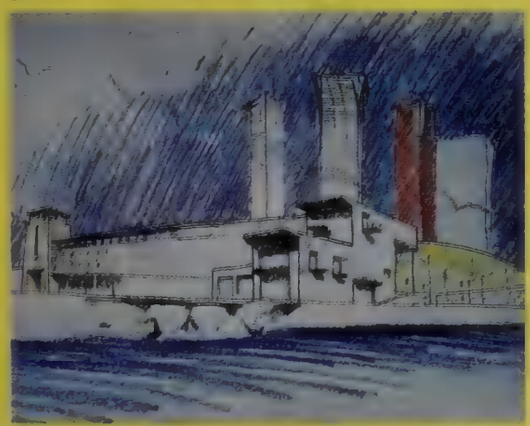
Drive to a sudden stop at a parking garage topped by tennis courts.

"Right now, Miami Beach is the talk of the world," said Robert Stern, "but is it like this year's restaurant or is it an endurable place? I believe that the future of Miami Beach does lie in this incredible piece of land known as South Pointe."

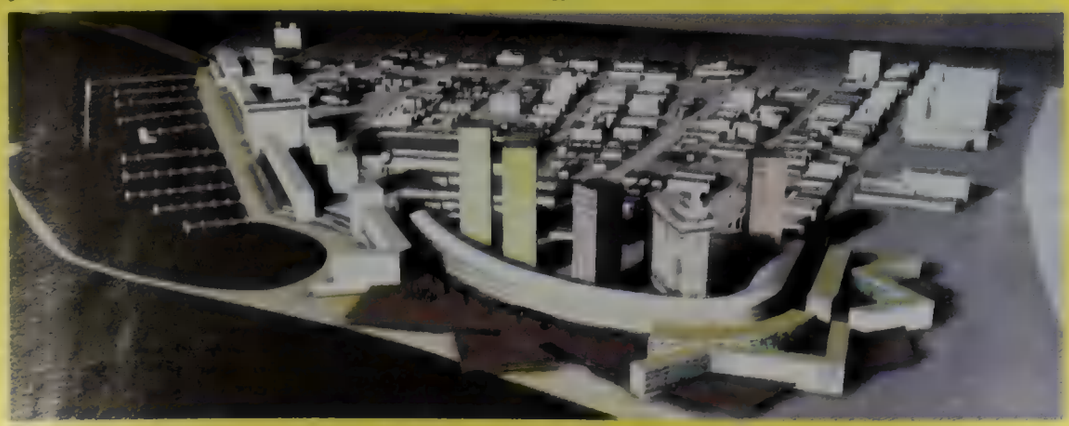
Talk indeed: so many people crammed into Joe's Stone Crab for the final presentation that the fire marshals were called in, and at least a hundred persons had to stand outside and simply listen to the nine proposals. Eventually, though, Kramer intends to incorporate all this into a single site plan—either by drawing on favorite elements from a number of proposals or hosting a second charrette with fewer firms at work. The work will be exhibited for an additional public view. The challenge presented by South Pointe is to turn it into a place where real people live, work, and play, a neighborhood with substance and meaning, lyrical enough to cast a spell on us and rational enough that we can understand it. *Beth Dunlop*



9



10



10a

New York City

The Earth Moves in Brooklyn



Bret Morgan photo

At the end of a tree-lined boardwalk, the earth will lift up into a sod-covered roof to invite visitors into Lee Skolnick's 8,000-sq-ft environmental-education center in Brooklyn's Marine Park. The boardwalk, due for completion in 1995, will continue along two sides of the building as a display-lined bridge leading to a floating dock in Jamaica Bay. Skolnick calls the project "a focusing station—a viewfinder to the natural environment, poised at the juncture of land, water, and sky, on the boundary of built and unbuilt." A project of the City of New York Department of Parks and Recreation, the building will house exhibits and classrooms for educational purposes, administrative offices, boat storage and a sheltered boat slip, and a caretaker's apartment. Environmental-conservation principles embodied in the building include the sod roof, solar-gain glazing, rainwater and gray-water recovery systems for irrigation, and an environmentally conscious mechanical system. Mark K. Morrison & Associates is landscape architect for the project, J. H. Crow is environmental consultant, and Wesler-Cohen is consulting engineer. ■

Paris

Clear Span to Link Louvre and D'Orsay





EPPCI photos

Paris architect/engineer Marc Mimram has won the international competition to design the Solferino footbridge, which will connect the Louvre with the left bank and the Musee d'Orsay. Unlike most of the seven other entries, Mimram's shallow steel 350-ft arch will connect the banks of the Seine without any intermediate piers; pedestrians may cross on the top deck, at the level of the museums, or between the trusses that constitute the arch, reaching the riverbanks at the waterfront. The seven other competitors were Patrick Berger, Santiago Calatrava, Philipe Chaix and J. P. Morel, François Deslaugiers, Massimiliano Fuksas, Valode & Pistre, and Charles Vandenhove and Prudent de Wispelaere. The $13-million bridge is part of the "Projects of the Louvre," and is scheduled to be constructed by 1995. *Spiro N. Pollalis*

Buenos Aires

After a Century of Bad Breaks, A Sleeping Beauty Awakes

A cavernous vaulted entry with Milan-style murals introduces the new Galerias Pacifico, an eye-opening commercial and cultural center, recycled by Juan Carlos Lopez and Associates from the remnants of a century-old building along the Florida promenade. Lopez, head of a Buenos Aires studio employing over 100 architects, hopes the project will help "our urban memory" in a country which he admits is "very adept at forgetting." Until recently, the structure was a ramshackle monument to Argentina's century-long boom-or-bust economy, an eyesore in search of someone with an idea. The almost full-square-block now contains 150 [illegible], a library, ample space for local [illegible], and a large theater [illegible]. It's also among the [illegible] for Moscow's GUM [illegible]. *Jay Goldman*



Favio Ballestrieri photo

esign

Briefs

Winners

Kenzo Tange has won the architectural part
Japan Art Association's Praemium
nperiale for lifetime achievement.
Steven Holl won the competition to design
elsinki's Museum of Contemporary Art.
Two architecture-student teams—Ron
aerg and Daniel Stettler of the University
Oregon and Cornelius Deckert and
udwig Fontalio-Abello of the University of
iami—shared first place in the Taylor
ard competition to unify several neighbor-
oods divided by the Los Angeles River,
onsored by the Sheet Metal Workers, the
neet Metal and Air Conditioning Contrac-
rs, the National Energy Management
stitute, and AIAS. Kurt A. Micheels of the
niversity of Southern Florida and Paul J.
eldbach of UCLA shared first place in the
ational Science Foundation/AIAS compe-
ion for a self-sustained Antarctic outpost.

oves

Robert A. Fielden has become president of
e National Council of Architectural
egistration Boards (NCARB).
Netherlands Architecture Institute (Rotter-
m) opens a study center October 1.

reatly exaggerated

hen UCLA proposed to join its Archi-
cture/Urban Design program with the
hool of the Arts to form a new School of
rchitecture and the Arts, and to link the
rban Planning program to a new School of
ublic Policy, the announcement used words
e "disestablish" and "restructure." But,
ys dean Richard Weinstein, the proposals
e administrative only, and don't refer to
he academic programs, faculty, and stu-
nts" at the school, nor affect its degree
ograms. Indeed, Craig Hodgetts and Mark
ack will join the faculty and Thom Mayne
ill become an adjunct professor.

reening the White House

ecommendations are due in October on the
overnment energy/environmental audit of
e White House and the Old Executive Of-
e Building. The AIA is coordinating
ivate experts on the project, whose long-
nge goal is to provide environmental and
ergy-saving strategies for governments
nd government workers' homes) through-
t the country.

emembered

muel Kurtz, FAIA, past president of the
ew York Chapter AIA, died on July 15. ■

At the Movies

The Architecture of Innocence–And Guilt





Phillip Caruso photos

In *The Age of Innocence*, film director Martin Scorsese targets the upper-crust mean streets of the Belle Epoque. The film is based on the novel of the same name by Edith Wharton—whose 1897 non-fiction "The Decoration of Houses" helped end the overstuffed decor seen on screen. Production designer Dante Ferretti aimed to evoke the era's architecture with a Proustian precision that required 16 months of research but didn't preclude sacrificing veracity for psychological drama: to suggest the stultifying social order overwhelming the film's ill-fated lovers, a scene at New York's old Metropolitan Museum replaced the original modest skylights with soaring glass vaults inspired by McKim Mead and White's Pennsylvania Station. Ferretti also designed a dozen residences for the film, including the Fifth Avenue palace of the nouveau-riche Julius Beaufort, the Ivan Boesky of the era, with a ballroom built for no purpose beyond the occasional party, and the neo-Romanesque castle (interiors seen here) of Mrs. Manson Mingott, who, Wharton wrote, shocked Society, "by building... in an inaccessible wilderness near the Central Park." *Donald Albrecht*

Germany

Historic Hamburg Port Builds Trade Center

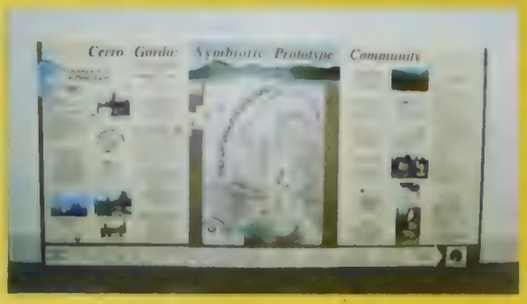


To add needed central-city office space and provide a counterpoint to adjacent historical warehouses, six firms are designing the Hanseatic Trade Center, which includes a warehouse conversion by Dieter Heusch and four separate phases by the Kohn Pedersen Fox London office (middle blocks, to open by year end); Nägele Hoffmann Tiedemann (central tower); Kleffel Köhnholdt Gundermann (far right); and von Gerkan Marg, (left). Schweger und Partner designed the unifying bridges and walkways. ■

Thinking Green

SustainableHousing Goes International





The AIA-sponsored "Call for Sustainable Community Solutions" attracted 406 entries from 50 countries. Nine $3,000 prizes went to professional teams from Thailand, Oregon (two), China, Canada, California, London, Saudi Arabia, and Yugoslavia. Eight awards went to students. Jury chairman Allan Rodger said he liked the "integrative" solutions of the nine, adding that they were "simple without being simplistic." Discussing some of the losers, Rodger said he was troubled by their "undue orientation to physical objects" (as distinct from social, economic, and cultural sustainability issues), and by their occasional inability to "grasp the complexity" of planning sustainable communities. The documentation, typically done on large illustration board, was light on drawings and other images and heavy on text. This fact was noted by the conscientious jury but taxed the concentration of observers, whose interest was eroded by the physical effort of so much reading. Other jurors were UIA president Olefumi Mojekwumi, economist Hazel Henderson, [illegible] Lyle, and architect Wolf Tochterman. *S. A. K.*

Williamsburg

Housing Leaders Mull Prospects

Last June's conference of 105 invited leaders in the housing industry underscored the key role of housing construction in the economy. With McGraw-Hill, Inc., Harvard's Joint Center for Housing Studies, and the National Housing Endowment as major sponsors, the Williamsburg, Virginia, conference heard participants point out that short-term prospects for government support of single-family-housing construction were severely restricted by deficit-reduction pressures. In the private sector, despite pent up demand for housing, construction was seen as limited by prospective customers' lack of funds for downpayment and by the reportedly widespread fear by many first-time homebuyers to commit to buying a home. Other developments affecting the housing field include high costs caused by a network of accumulated zoning, environmental and wage regulations, and a wild card in the shape of the huge flow of new immigrants of home buying age. Finally, government officials championed a concern for the social components of housing, such as day care, health care, family and job counseling and community facilities. *S. A. K.*

Salaries

Big Salaries for Staff Architects

A recent AIA survey has confirmed RECORD's findings last year when it polled architects working outside private practice [see *Architects at Large*, November 1992, pages 26-28]: They *do* make more money. Responses from over 3,000 architects working in a variety of endeavors found the highest salaries in development, despite that field's battering in the past few years. Persons with the title of "president" have mean salaries of $154,625, or two to three times more than the last AIA survey showed for firm principals in private architectural practice. ■

Practice

Briefs

GSA: Full-throttle turnaround. The engineers' and architects' new thrust to raise the six-percent limit on building-design fees through the united-professions group, The Council on Federal Procurement of Architect and Engineer Services (COFPAES) [RECORD, February 1993, page 31] couldn't have come at a better time now that James Stewart, director the Office of Design and Construction at GSA/PBS has announced GSA's biggest-ever construction campaign: nearly $6.5 billion for design, and bricks and mortar. This means a new direction for the GSA, which had been increasingly relying on outside developers. Now Stewart calls design-build "a difficult process to implement." The agency is also experimenting with time-saving procurement proposals.

Congress: Crossing Brooks? Recommendations by the Department of Defense on its future operations include ending the six percent limit on design fees. They do *not* include ending architect and engineer procurement based on professional ability instead of cost. But Congress may give with one hand and take away with the other if the drafters of its legislation to put DOD's recommendations into effect have their way. They would eliminate from DOD guidelines the Brooks Act, which was enacted to end architect and engineer selection on the basis of fees. This means that, while DOD would be willing to pay more than six percent, it is not likely to do so considering architects' and engineers' currently stiff competition.

New York State: Putting architects up there with export manufacturers. For the first time this year, New York's Department of Economic Development has looked at contributions to local economic activity by industries that export services. (Previously, it had only considered export of products.) On September 22, the Governor's Award for Achievement in Export will go to, among other service providers, an architectural firm, Swanke Hayden Connell Architects, for its development of work in Turkey, Venezuela, England, and Germany. ■

This Month

ient Downsizing Boosts Business r Architects. *Page 37.*
chitects are finding bright spots in the rporate gloom by helping clients downsize eir operations. Two firms with experience are it with RECORD.

dge/Sweet's Second 1993 Construc- n-Volume Update. *Page 39.*
ere's little to cheer about in the current kluster situation, but this may improve w that some uncertainty has been re- ved with last month's passage of the w-tax package.

ecifications Series: Entrances and orefronts. *Page 42.*
orefronts, a word derived from their ginal use on stores, has come to refer the broad spectrum of commercial en- nce-level glazing. RECORD takes a look a variety of types and gives an outline ecification for those in aluminum frames.

D Inc. Opts for No Computer erators. *Page 46.*
D operators have gone the way of eleva- operators at this firm, where everyone ts in the act.

Client Downsizing Boosts Business for Architects

You see it more and more these days. Corporate clients who found they could get along with ever smaller staffs and resources during the recession are staying lean and mean as business picks up. Where are the savings? "A typical corporation spends 93 percent of its operating budget on personnel and only 7 percent on the space to house them," reports Joseph Connell, design manager for The Environmetrics Group in Chicago. Still, his architectural firm has helped boost its business by offering consulting services on the design of shrinking corporate offices. "If you can help save a client one percent on physical plant, you've done a lot," he concludes. But some clients are looking for much more.

How widespread is downsizing? "Almost every corporation is going through it," says principal Lawrence Lander of PDR, an architectural firm in Houston specializing in interiors. Because the downturn hit Houston early, he has had longer to observe the difference in attitudes between the '80s and the '90s. "Projections on growth used to be very grandiose, with charts showing ever-growing facilities," he recalls, "but now companies don't want to think very far ahead at all." He quotes the typical '90s directive: "Build tight and keep the options open," interpreted as: use as little space as possible, but allow for expansion—or further contraction.

Interviewing clients

"Companies generally just ask how to cut costs—not how to get more space utilization and productivity," observes Connell. "One of the first things to find out is the lengths to which a client is willing to go in achieving its goals." Will that client share enough information to help the architect make a useful contribution? For instance, his firm wants to analyze revenue per employee and review alternate solutions for reducing space. He lists among them "hoteling, free addressing, and skunk works" (see overleaf).

"Ask questions—even the most obvious ones," recommends Lander, who sees reorganizations as opportunities to encourage clients to rethink their habits. For instance, does the company need a comptroller for every division, when a shared central office might produce more equitably shared duties? "Listen to the answers," he cautions. If the client sounds reticent, the answer may involve more factors than the architect should probe. Indeed, discretion is important before and after getting the job. A client will probably not want the public to know it is downsizing—nor, as we shall see, may it want its employees to know the extent.

"What clients ask most is what the competition is doing," says Lander, noting that the answers require judgment on whether this is information the competition wants to share. The most frequently asked question: "How much rent do the X, Y, and Z companies pay per employee?" Others include the ratio of support staff to operations, amount and types of work such as printing farmed out to independent producers, and space allotted for each employee.

Lander calls all of these comparisons "benchmarking." He advises not getting bogged down in details too early. "Our main competition comes from real-estate consultants who hand the client a 200-page report when the client just wants to get on with downsizing as fast as possible. Other competition comes from management consultants, who leave the client without any concept of the physical implications of their recommendations."

Is there a difference between the needs of a client that owns its own building and one that rents space? What if the latter can't rent the emptied space? "Any downsizing company will consolidate its facilities unless it's at death's door," says Lander.

Among the techniques PDR recommends for renting unused space is finding a symbiotic business such as a consultant in the owner's field. Still, for the owner company going through contraction, the problem is much more difficult."

Office basics

"Standard office sizes and arrangements vary by industry," notes Lander. Functions performed vary, and prestige, as measured by competitive companies' offices for similar positions, can be an impetus as well. "It is

"Build tight and keep the options open," is the directive in the buttoned-down 1990s for space-conscious clients.

In the building sections below, architects PDR consolidated a client's departments, defined by color coding, to free up the top floors for other users and to make the downsized operations more efficient.



very rare to find companies with all levels of employees in the same-size offices." Lawyers and accountants expect 150 square feet for associates, 250 square feet for partners, and even more for senior partners. In the petroleum industry, geologists expect offices with 150 square feet where they can be isolated in their work, and an additional common area where they can meet and compare notes.

The Environmetrics group's Connell calls this concept, "caves and commons," taking the name from one of several systems-furniture tests being carried out by major manufacturers. But Lander disputes the notion that privacy is an option with open systems. "Offices with sheetrock walls are cheaper, more efficient, and don't take up as much space for circulation." Systems cubicles are ideal for industries in which the employees are expected to communicate with one another frequently, such as insurance companies and architects' offices. Cost is between 42 and 60 dollars per square foot. There goes privacy.

Chucking basics

"There are ways to reduce space even with the same number of employees," states Connell, who tends to take the more revolutionary approach:

• *Hoteling.* A rotating cast of employees shares standard-size workstations. "Auditors are ideal candidates," he notes, "because they do much of their work in clients' offices." But other types of businesses may benefit as well. "Office workers are generally absent for 30 percent of the working year—on sick leave, vacation, or out-of-town trips." He cites one accounting firm where, by reservation, a "concierge" rolls in a cart containing an individual's files, photos, and other paraphernalia. "Visitors think it *is* the employee's office."

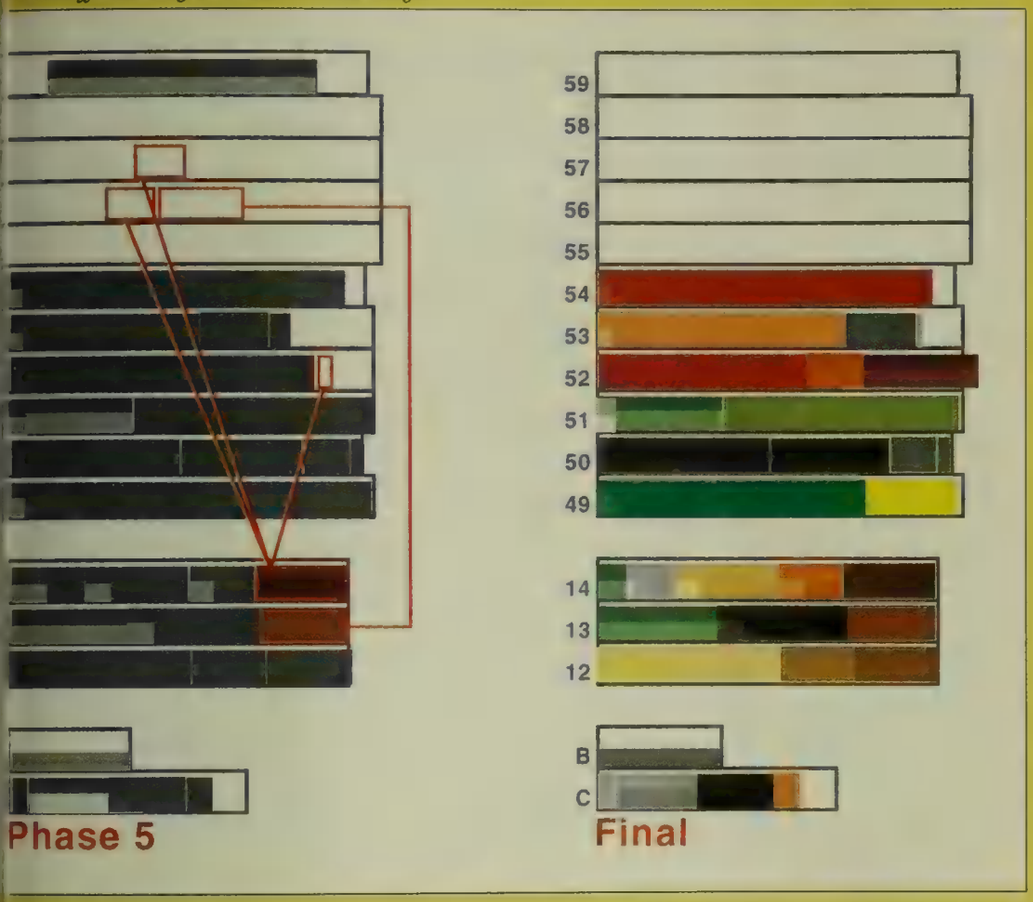
• *Free-addressing.* Electronics replacing space is a concept probably best suited to people in sales, computer users with no fixed office. Connell notes that such inventions as the laptop, which can hold files and reference materials such as addresses, reduce the amount of space that office workers may need. Shared conference and records rooms must then compensate. Indeed, he notes downsides to both of the above arrangements. Mentoring and comradeship are lost. So is the prestige factor of offices reflecting the occupants' importance, which Lander points to as being very important. Companies must question whether the space gains make up for lost morale, says Connell.

• *Skunk works.* A group of employees arrange a given amount of space to best suit how they work together. "This is best for people in creative pursuits—such as designers in the aircraft industry."

Chucking offices

"Work is easiest at home," says Connell. This is best for people who produce a quantifiable product, such as salespeople. It also raises the question of the employer's liability. To counter possible complaints of fatigue-related injuries such as Carpal Tunnel Syndrome, a nerve and muscle disorder caused by repetitive actions, furniture manufacturers are working overtime to come up with new ergonomic lines that the employer can wheel into the worker's home. One prod

keep departments running smoothly
d avoid tying up elevators, the moves
re done in six weekend stages. Five are
wn. Departments indicated in gray
re unaffected by moves at that stage.



, contained in a refrigerator-size box, ers everything the worker needs, includ- an ergonomic chair.

other trend that Connell notes is flexible rk schedules. "International relations an more odd hours. The person dealing h traders in Jakarta must work different rs than the person regularly contacting ndon." The solution might be any one of se space strategies above.

anning moves

th architects talk about the need for com- nies to keep employees they want to keep, save the cost of retraining, even while minating others. As a result, architects in- viewing staff may need to be very tactful. R will spend several weeks in such inter- ws before making recommendations on a ge move. Whether those interviewed are t of a division meant for radical wnsizing or simply a new location, the ar- tects must find out what they do and how t relates to the work done in other divi- ns. The consequence, notes Connell, is that employers may wind up paying for "sops" in addition to the costs of moving employees around. Among the physical incentives are new daycare and physical-fitness facilities. Other incentives may be bonuses, flexible hours, and the right of employees to bring their dogs to work.

Another problem architects encounter in downsizing is the logistics of moves. "Owners of buildings often object to having their lobbies littered with furniture in transit and their freight elevators occupied non-stop," says Lander. Hence, moves may have to be broken down into manageable chunks, such as they were on the project above. Lander notes that one former client has since been bought and his firm is now involved in another round of its replanning. "Don't get stuck on any one solution," he advises. Other problems? "We still haven't figured out how to cut a computer room in half," he responds. Instead, PDR advises moving other support facilities into unused computer-room space. "It beats the costs of recabling and starting from scratch," he says. *Charles K. Hoyt*

F. W. Dodge's 1993 Construction Update

By Robert Murray

The first half of 1993 has done little to dispel the notion of an on-again, off-again recovery for the construction industry. At the end of last year, a fourth quarter rebound of activity raised hopes following 1992's midyear doldrums. But 1993's first quarter was unable to sustain the upward momentum, as both the harsh winter weather and the loss of confidence by consumers and business took their toll. Contracting for new construction slipped back one percent, once again putting the recovery of the construction industry on hold.

Just how much of the sluggishness was due to weather and how much was due to more fundamental weakness was uncertain at first. A troubling sign came with the second-quarter data, which showed contracting making no appreciable upturn. In addition, construction put in place, which tends to lag the contracting series by a quarter, also flattened out. More and more the delayed recovery was starting to look like an indefinite postponement. But fortunately the data contained at least one positive element—a strong month of June offered an indication that the construction recovery might get back on track in the third quarter. And passage of the Clinton economic program in early August should ease to some extent the uncertainty that accompanied the program's legislative journey.

The progress of the Clinton Administration's economic plan through Congress has been a key element in this year's forecast. Its initial presentation back in February caused a strong reaction on the part of the bond market, as long-term rates fell to the lowest level in two decades. In part this was due to the Clinton plan being recognized as a credible attempt to deal with the deficit, in part it reflected the dampening effect higher taxes would have on the economy.

In May and June, the economic program made its way through the House and Senate, with the conference committee then resolving the differences in July. The program included higher taxes on personal income, a 4.3 cent gasoline tax, deeper cuts in defense spending among other programs, all leading to a reduction in the deficit of almost $500

No surprises in a second look at 1993's lackluster Construction-Volume Outlook.

billion during the 1994-97 period. Depending on one's point of view, the ratio of spending cuts to new taxes was one-to-one, or less than one-to-one if reductions in interest costs are not placed in the spending-cut column.

With enactment of the Administration's plan, there will be some negative impact on economic growth due to higher taxes. Nevertheless, the easing of business uncertainty should aid the recovery, in combination with the diffused benefits of lower interest rates. From the weak economic growth posted in the first two quarters, at 0.7 and 1.6 percent, the rate of expansion is expected to pick up in 1993's second half. Growth for the year as a whole is projected in the range of 2 to 2.5 percent.

For the construction industry, the early events of 1993 (including the progress of the industry's main sectors) have called for some fine-tuning of the outlook.

Housing

During 1993's first half, single family housing was unable to offer much response to the current low level of mortgage rates. Although there has been some movement in new- and existing-home sales, single-family starts fell 2 percent in the first quarter to a rate of 984,000, and a disappointing second quarter pulled homebuilding even further away from the million-unit level. Whereas the poor weather could serve as a ready excuse for the first quarter slippage, the tepid second-quarter performance is more troubling.

The weak jobs picture, with the unemployment rate stuck at 7 percent as firms hold off on new hiring, has naturally had an adverse impact on consumer-confidence levels. In addition, the defeat of the stimulus package, in combination with Congressional debate over the fate of the Clinton economic program itself, has undermined some of the earlier sense that the Administration was correctly addressing the nation's problems.

[illegible] have weakened the huge [illegible] California, forcing it to sit [illegible] the early stages of [illegible] sense of urgency for [illegible] it once was—with

1993 National Estimates Dodge Construction Potentials — Second Update July, 19[illegible]

		1992 Actual	1993 Forecast	Percent Change 1993/[illegible]
Nonresidential Buildings				
Floor Area (millions of sq. ft.)	Office Buildings	85	78	– 8
	Stores and Other Commercial	185	195	+ 5
	Other Commercial	191	177	– 7
	Manufacturing Buildings	95	90	– 5
	Total Commercial and Mfg.	556	540	– 3
	Educational	146	152	+ 4
	Hospital and Health	77	72	– 6
	Other Nonresidential Buildings	157	151	– 4
	Total Institutional and Other	380	375	– 1
	TOTAL NONRESIDENTIAL BUILDINGS	936	915	– 2
Contract Value (millions of $)	Office Buildings	$ 11,497	$ 11,775	+ 2
	Stores and Other Commercial	11,764	12,800	+ 9
	Other Commercial	9,421	9,200	– 2
	Manufacturing Buildings	8,671	8,375	– 3
	Total Commercial and Mfg.	$ 41,353	$ 42,150	+ 2
	Educational	$ 16,432	$ 17,775	+ 8
	Hospital and Health	10,829	10,425	– 4
	Other Nonresidential Buildings	18,134	17,450	– 4
	Total Institutional and Other	$ 45,395	$ 45,650	+ 1
	TOTAL NONRESIDENTIAL BUILDINGS	$ 86,748	$ 87,800	+ 1
Residential Buildings				
Dwelling Units (thous. of units)	Singlefamily Houses	962	1,030	+ 7
	Multifamily Housing	161	170	+ 6
	Total Housekeeping Residential	1,123	1,200	+ 7
Floor Area (millions of sq. ft.)	Singlefamily Houses	1,693	1,853	+ 9
	Multifamily Housing	171	180	+ 5
	Total Residential Buildings	1,864	2,033	+ 9
Contract Value (millions of $)	Singlefamily Houses	$100,617	$110,400	+ 10
	Multifamily Housing	10,018	10,575	+ 6
	Total Residential Buildings	$110,635	$120,975	+ 9
Nonbuilding Construction				
Contract Value (millions of $)	Transportation Construction	$ 31,403	$ 34,750	+ 11
	Environmental Construction	15,754	16,100	+ 2
	Total Public Works	$ 47,157	$ 50,850	+ 8
	Utilities	$ 6,303	$ 6,100	– 3
	TOTAL NONBUILDING CONSTRUCTION	$ 53,460	$ 56,950	+ 7
All Construction				
Contract Value (millions of $)	**Total Construction**	$250,843	$265,725	+ 6
	Dodge Index (1987=100)	97	103	

993 Regional Estimates Dodge Construction Potentials

Second Update July, 1993

onstruction Contract Value nillions of dollars)	1992 Actual	1993 Forecast	Percent Change 1993/92		1992 Actual	1993 Forecast	Percent Change 1993/92
lortheast T, ME, MA, NH, NJ, NY, PA, RI, VT							
onresidential Building				**Residential Building**			
ommercial and Manufacturing	$ 7,038	$ 7,100	+ 1	Singlefamily Houses	$12,047	$12,725	+ 6
ıstitutional and Other	9,372	8,925	– 5	Multifamily Houses	2,041	2,075	+ 2
otal	$16,410	$16,025	– 2	**Total**	$14,088	$14,800	+ 5
onbuilding Construction	$11,193	$12,125	+ 8	**TOTAL CONSTRUCTION**	$41,691	$42,950	+ 3
lorth Central , IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI							
onresidential Building				**Residential Building**			
ommercial and Manufacturing	$ 9,422	$ 9,950	+ 6	Singlefamily Houses	$22,963	$24,250	+ 6
ıstitutional and Other	10,755	10,350	– 4	Multifamily Housing	2,637	2,675	+ 1
otal	$20,177	$20,300	+ 1	**Total**	$25,600	$26,925	+ 5
onbuilding Construction	$11,514	$12,000	+ 4	**TOTAL CONSTRUCTION**	$57,291	$59,225	+ 3
outh Atlantic E, DC, FL, GA, MD, NC, SC, VA, WV							
onresidential Building				**Residential Building**			
ommercial and Manufacturing	$ 7,402	$ 7,475	+ 1	Singlefamily Houses	$24,424	$28,000	+ 15
ıstitutional and Other	8,251	8,900	+ 8	Multifamily Housing	1,948	2,425	+ 24
otal	$15,653	$16,375	+ 5	**Total**	$26,372	$30,425	+ 15
onbuilding Construction	$ 9,492	$10,525	+ 11	**TOTAL CONSTRUCTION**	$51,517	$57,325	+ 11
outh Central L, AR, KY, LA, MS, OK, TN, TX							
onresidential Building				**Residential Building**			
ommercial and Manufacturing	$ 6,416	$ 7,275	+ 13	Singlefamily Houses	$16,190	$19,175	+ 18
ıstitutional and Other	6,446	7,250	+ 12	Multifamily Housing	798	1,025	+ 28
otal	$12,862	$14,525	+ 13	**Total**	$16,988	$20,200	+ 19
onbuilding Construction	$ 8,260	$ 9,050	+ 10	**TOTAL CONSTRUCTION**	$38,110	$43,775	+ 15
Vest K, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY							
onresidential Building				**Residential Building**			
ommercial and Manufacturing	$11,075	$10,350	– 7	Singlefamily Houses	$24,993	$26,250	+ 5
ıstitutional and Other	10,571	10,225	– 3	Multifamily Housing	2,594	2,375	– 8
otal	$21,646	$20,575	– 5	**Total**	$27,587	$28,625	+ 4
onbuilding Construction	$13,001	$13,250	+ 2	**TOTAL CONSTRUCTION**	$62,234	$62,450	–

repared by the Economics Department, Construction Information Group, McGraw-Hill Information Services Company, obert Murray, vice president, economic affairs.

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persistent low inflation, there is less of a rush to purchase a home before prices rise.

Still strong demographic support is present for this market, with the 35- to 54-year-old group growing substantially through the decade. The current impediments to the housing recovery are viewed as temporary, with a rebound expected during the second half of 1993. For the year as a whole, single-family housing is projected to total 1,030,000 units, a gain of 7 percent.

Public Works

For public-works construction, the defeat of the stimulus package meant a limitation of this sector's near-term potential. Although there was talk of bringing back the highway portion, it didn't get far with a Congress trying to assume a deficit-reduction posture.

The highway legislation passed at the end of 1991 raised transportation funding 20 percent from earlier levels, but Congress appropriated less than the full amount possible due to the limits of the 1990 budget agreement. In arriving at a budget for the upcoming fiscal year, Congress once again set aside less than the legislation authorized. The House appropriations bill for the Department of Transportation shows highway funding climbing 7 percent to $19.3 billion, a welcome gain but still short of the $20.5 billion authorized by the highway bill. With this benefit coming in the fourth quarter, public works will be able to grow from the moderate pace already shown in 1993, registering an 8 percent gain for the year as a whole.

Institutions

Institutional building was expected to show another setback in 1993, due to fiscal stress at the state and local level. Surprisingly, educational building has strengthened so far this year, making at least a partial rebound from its 1992 downturn. Even though state budgets increased only 2 percent for fiscal 1993, there apparently has been little effect on school construction. Contracting for social and recreational building has also been strong in 1993, benefiting from the start of several large convention-center projects. Offsetting the turnaround for the educational and recreational categories has been ■

Continued on page 133

Specifications Series: Entrances and Storefronts

By Susan Greenwald

Products classified as storefronts today, deriving their name from their original use on stores, are now used in a wide range of building types. Options have multiplied in recent years. They include glass framed with aluminum and self-supporting glass with applied fittings. Wood, bronze, hollow metal, and other framing materials are also used sometimes. Finishes for aluminum include high-performance baked-on coatings and anodizing, now available in a wide range of colors. Glass is available in a vast array of colors, coatings, patterned frits, and special effects created with colored interlayers when the glass is laminated.

Entrance-door assemblies in storefronts must be accessible to wheelchair users, stand up to high traffic, and open and close against the force of wind and stack effect, which is created by air rushing in and up through buildings. Power-assisted and power-operated doors are increasingly used in these situations. Sliding doors are relatively unaffected by wind forces. Swinging entrance doors should be recessed from the path of cross-traffic, and should be designed to open approximately 105 degrees.

Where manual operation is practical, suitable hardware can be provided by the entrance manufacturer or by the building's hardware supplier. Hardware may be specified in either the entrance-assembly section or in the hardware section. Offset pivots or butts are usual; the advantage of pivots is that they transfer door weight to the floor rather than the jamb; butts provide greater free-opening width. Full-length hinges are used for schools and other doors subject to abuse. Panic-exit devices are often required. Balanced-door assemblies are yet another option. They require wider openings, but can be operated with less force than conventional doors, and can comply with accessibility requirements if properly planned. Revolving doors are required where stack effect is severe and frequency of use is high. To prevent air rushing during peak traffic periods, it is important to keep either an inner vestibule door or an outer door closed while the other is open.)

Physical-performance criteria are usually somewhat less stringent for storefront than for glazed curtain wall, but many of the considerations are similar, and performance criteria are usually included in specifications. Storefront systems are differentiated from curtain wall in that they do not normally span more than a single story. They must, nevertheless, still resist wind load, thermal movement, air infiltration, water leakage, and condensation. They may also be vulnerable to vandalism, and use of laminated glass or security glazing may be advisable. Storefronts at grade level in northern climates are also likely to be exposed to snow, requiring extra structural strength and/or waterproofing, and to de-icing salts, requiring extra finish protection.

For more information

Publications available from American Architectural Manufacturers Association. 708/202-1350:
Aluminum Store Front and Entrance Manual (SFM-1, 1987).
Windloads on Components and Cladding for Buildings Less than 90 Feet Tall (TIR-A-10, 1992).
Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections (AAMA 1503.1-88).
Field Check of Metal Curtain Walls for Water Leakage (AAMA 501.2-B3).

Publication available from the American Institute of Architects. 202/626-7300:
MASTERSPEC Section 08410 *Aluminum Entrances and Storefronts*, including related evaluation sheets, and drawing- and specification-coordination sheets.

Publication available from the Construction Specifications Institute. 703/684-0300:
SPECTEXT Section 08410 *Aluminum Entrances and Storefronts.*

Publication available from the Sweet's Group, McGraw-Hill, Inc. 800/442-2258:
1993 Catalog File, General Building and Renovation—Selection Data "Entrances: assemblies," pages 96-97. ■

Aluminum Entrance and Storefront Guide Specification

PART 1. GENERAL

A. System description

1. Structural requirements: system shall meet or exceed the following as demonstrated by calculations and testing:
a. Wind loads: engineer systems to withstand design wind loads of (value as required by code; 20 to 30 psf is typical for lower-floor locations) psf positive and negative pressure.
b. Factors of safety: systems shall be designed to sustain without damage a proof load of 1.5 (or other) times design-wind loads when tested in accordance with ASTM E330.
c. Deflection limits at design loads: For metal members supporting glass:
Perpendicular to plane of wall: (values of L/175 and L/240 are typical).
In plane of wall: (value typically limiting deflection so that glass bite is not reduced by more than 25 percent and edge clearance between the framing member and the glass is not less than 1/8 in. The minimum clearance between the member and an operable door or window may also be specified.)
Insert other limits, such as that of glass.
d. Thermal movement: provide for expansion and contraction of component materials caused by an exterior ambient temperature ranging from (high number) to (low number).
2. Air infiltration: not more than 0.06 cfm per square foot, when tested at (value, typically 6.24) in accordance with ASTM E283, exclusive of operating leaves of doors.
3. Water leakage: no leakage when tested at (value; many systems can meet 10-12 psf), in accordance with ASTM E331, exclusive of operating leaves of doors. (Include separate criteria for leaves of doors if required; information is available from storefront manufacturers.)
4. Condensation resistance: provide systems tested for thermal performance in accordance with AAMA 1503 showing condensation resistance factor (CRF) of not less than (values up to 55 are readily available; check with manufacturers).

B. Submittals

1. Product Data: (For standard systems, and for manufactured components of custom systems).

[illegible] principal of *ArchiText*, [illegible] writing and technical-

This look at storefronts includes general considerations for all types and an outline specification for installations in aluminum frames.

. Shop drawings and calculations; submit hop drawings, signed and sealed by a struc- ıral engineer licensed in (state). Submit alculations verifying conformance with pecified structural requirements.
Test reports: performed by an indepen- ent laboratory, indicating compliance with pecified performance requirements.
. Samples: (glass, aluminum finishes, ardware)

. Quality assurance
Laboratory testing: (Insert requirements r standard or custom systems as required.)
Installer qualifications: (Insert experience equirements.)
Pre-installation conference: (Specify if eeded for coordination and to reinforce roject requirements.)
Mock-up: (Specify if needed for project).

. Warranty
Submit a written warranty, executed by ıe manufacturer, agreeing to repair or eplace units that fail in materials or work- ıanship within the specified warranty eriod. (Add more detailed requirements, ıch as warranty of insulating-glass seal, ıetal finish.)

'ART 2. PRODUCTS

. Acceptable manufacturers
Design criteria: the drawings are based n the following products. (List products, ıanufacturers.)
Manufacturer: Subject to compliance with equirements, provide the above products or quivalent products from one of the follow- ıg manufacturers, which will be accepted rovided deviations in dimensions, profiles, nd other qualities are minor and do not ıange the design concept as judged by the rchitect. (Insert additional manufacturers).

. Materials
Aluminum members: alloy and temper rec- mmended by manufacturer for strength, orrosion resistance, and application of equired finish.
Extrusions: ASTM B221.
. Sheets and plates: ASTM B209.
Glass: 1-in.-thick sealed insulating glass onsisting of two panes of 1/4-in. clear empered glass with 1/2-in. air space and ıanufacturer's standard two-stage edge seal, complying with ASTM C1048 for Type FT and with ASTM E774 requirements for Class CBA. (Amplify and revise glass requirements as required for project.)
3. Glazing system: manufacturer's standard gasket glazing system complying with performance requirements and FGMA "Glazing Manual."
4. Anchors and fasteners: concealed corrosion-resistant metals compatible with aluminum.

C. Fabrication
1. Framing systems: provide storefront- and entrance-framing systems fabricated from extruded aluminum members of sizes and profiles indicated, as complete systems with all accessories required for compliance with specified performance requirements. Provide storefront-frame sections without exposed seams.
2. Door frames: provide extruded tubular and channel door-frame assemblies, as indicated, reinforced to support required loads. (Revise above if stops will be applied directly to storefront).
3. Stile-and-rail entrance doors: provide doors with tubular frame members, of thickness, size, and style shown on drawings.
4. Glazing: fabricate systems to facilitate replacement of glass. Provide snap-on extruded aluminum glazing stops, with exterior stops anchored so they can not be removed.
5. Finish hardware: (Specify hardware here if desired.)

D. Finishes
1. Clear anodized finish: AA-M12C22A41.
2. Color anodized finish: AA-M12C22A42/ A44 complying with AAMA 606.1 or AAMA 608.1.
a. Color: (name).
3. Baked enamel finish: AA-C12C42R1x complying with AAMA 603.8 except with minimum dry-film thickness of 1.5 mils, medium gloss. (Not recommended for doors or other surfaces subject to abrasion.)
a. Color: (name).
4. High-performance organic coating: AA-C12C42R1x complying with AAMA 605.2.
a. Color: (name).

PART 3. EXECUTION

A. Installation
1. Install entrances and storefronts according to manufacturer's instructions and final shop drawings, and to comply with performance requirements.
2. Set units plumb, level, and true to line, without warp or rack of framing members or doors.
3. Construction tolerances: install aluminum entrance and storefront to comply with the following tolerances. (Insert appropriate tolerances for project.)
4. Separation: separate aluminum from sources of corrosion or electrolytic action.
5. Drill and tap frames and doors and apply surface-mounted hardware items, complying with hardware manufacturers' instructions and template requirements. Use concealed fasteners wherever possible.

B. Field testing
1. After completion of storefront installation and related glazing, and prior to installation of interior finishes, test in accordance with AAMA 501.2 "Field Check of Metal Curtain Walls for Water Leakage," except that architect may designate all storefront or any portion for testing. (The above is a simple hose test; add pressure-chamber test for air and water infiltration if required.)

C. Adjustment and Cleaning
1. Adjust entrance doors for proper operation.
2. Clean glass after installation, and again within one week prior to substantial completion. ■

For more information on entrances, see Product Literature section this issue.

Start-Up

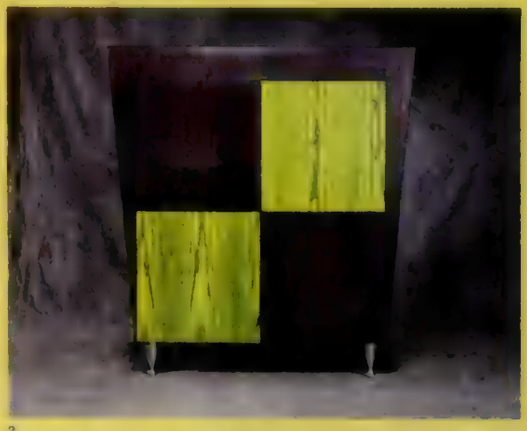
Contemporary pieces from a young American designer mix urbane shapes with country colors.



1



2



3







James Davis photos

300. Idiosyncratic

Ohio-born craftsman Marquis (Marc) Ewing is very much the master of his own style, working in a business-like manner similar to British designer/maker John Makepeace. Nevertheless, he started learning about furniture—how to design it and how to make it—in the most traditional way: from his father.

Then, following a move from the Midwest to northeastern New Jersey in 1981, Ewing apprenticed with European-trained master furniture makers, learning craft and hand-finishing techniques certainly more representative of the 18th century than those found in the nearby IKEA superstore.

With his first collection, called Zoom, Ewing blends elements of the pieces he learned on. Woods (ash predominates) have a distinct grain like some Deco furniture, and the curves of his sideboards seem Frenchified, but Ewing's results are fresh, urbane designs all his own.

The limited-production line, about a half-dozen pieces, includes sideboards and storage, shelving, a large mirror, and a low table. Made of book-matched hardwood and veneers, the furniture is distinguished by vibrant colors: a choice of 20 different aniline stains, protected by a hand-rubbed clear finish. Legs (more like feet) are highly polished aircraft-grade aluminum. The backs of all pieces are finished, so furniture does not have to be pushed against a wall. Zoom (1) is a bookcase/room divider with five shelves that vary in depth from 12- to 5 1/2-in. The 74-in.-high armoire (2) can be ordered with a customized interior fit-out. The Zona cabinet (3), shown open and shut, has four doors and two adjustable shelves, and, at 48 in., is high enough to work as a room divider. The Zamitria sideboard (4) incorporates several Ewing touches: doors are topped with a subtle curve (the top surface itself is flat); hinges are both concealed and adjustable, and its metal legs are eye-catching.

Retail prices for the made-in-New Jersey furniture start at $1,200. ZAP Industries, Belleville, N. J. ■

Health and Hospitality: To the (Price) Point

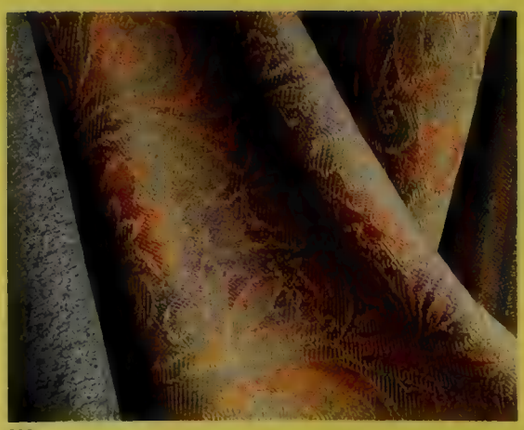
Innovations in fiber and weaving technology revitalize heavy-duty textiles.



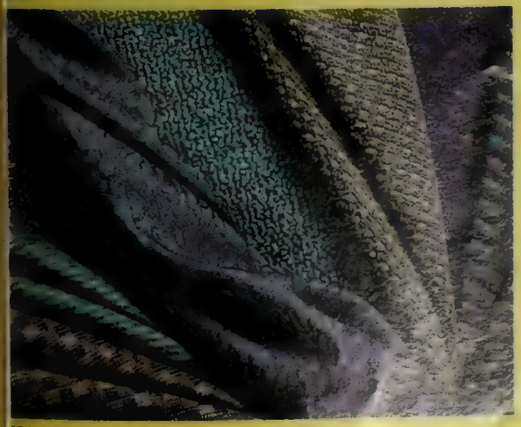
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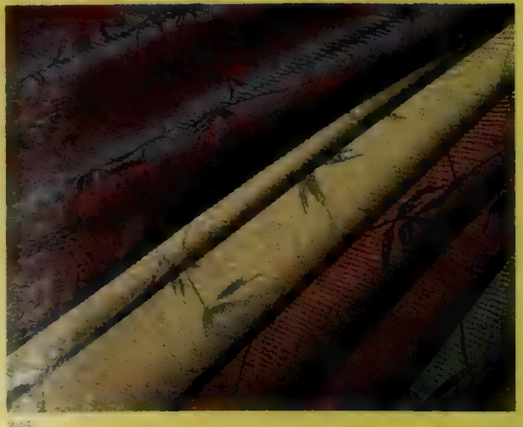
302



303



304



305

Moderate price was the rallying cry at NEOCON for marketers of commercial textiles into contract and healthcare applications. (Moderate, in this usage, means materials made to sell for $20 to $40 per 54-in.-wide yard.) But if the price was competitive, design and textile innovation were the winners: the very decorative fabrics shown here are said to meet the most severe flame-spread and wear standards. *J. F. B.*

301. Schumacher commissioned five talented designers and architects to come up with three totally new patterns each—and then fabric maven Kristie Strasen made sure the colorways worked one with another across the program. F. S. Contract, New York City.

302. Three lush cotton tapestries designed by Susan Lyons combine Indian and Provencal floral motifs. Here, "moderate" stretches a bit, at $44 per sq yd. DesignTex, Woodside, N. Y.

303. Woven of fire-retardant Trevira FR polyester, Garden Party is bold and festive. Pollack & Associates, New York City.

304. Developed in Zeftron 200 nylon specifically for the ultra-cleanability needed in healthcare, Sina Pearson's impressionistic upholsteries complement the colorways of stain-resistant carpets from three major mills. The solution-dying technique used insures that both carpets and fabric are technically identical in hue, and remain in harmony under different light sources. Sina Pearson Textiles, New York City.

305. Also aimed at the price-sensitive healthcare market, a tone-on-tone bamboo motif of solution-dyed nylon is particularly abrasion-resistant. Deepa Textiles, New York City. ■

ADD Inc. Opts for No CAD Operators

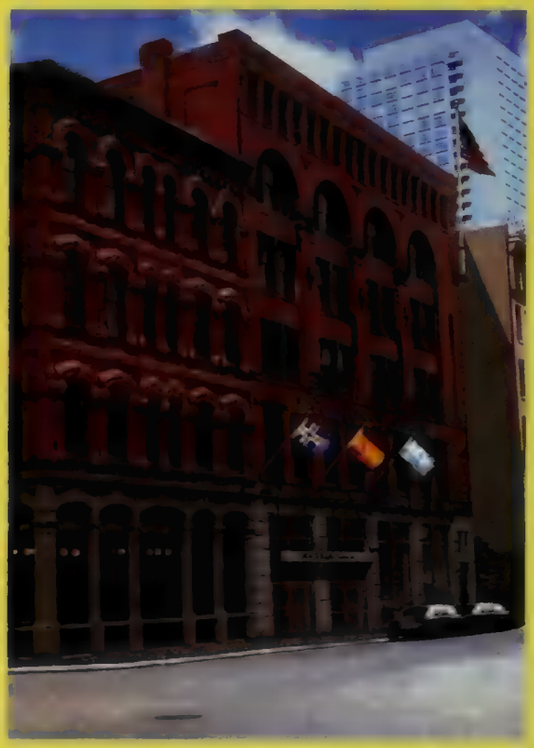
By John Hughes

CAD operators have gone the way of elevator operators at ADD Inc., a 50-person architecture and interior-design firm in Cambridge, Massachusetts. After 12 years of CAD experience, the firm recently shifted from its original CAD setup to less complex systems and software that allow networked stand-alone computers to automate the firm at every level. Now, everyone from principals to support staff use the computer (and have fun doing it).

While ADD Inc. chose a Macintosh system, "you could certainly create the same setup with a DOS-based system," notes firm associate and MIS director Matthew Meyer. "The point is that we are getting much more sophisticated products with much simpler means. I think the trend toward high-end systems is way off base. They are more appropriate for aerospace engineers than architects."

Since purchasing its initial workstation, ADD Inc. has continuously revised its computer capabilities, which started with mini-computers run by dedicated operators. It then bought two PCs to run an AutoCAD package and turned the old system into a PC-based setup, still run by a small core of trained operators. The firm bought the current networked stand-alone system for administration, but soon moved it into design and marketing. "It became clear to me that new simpler products could handle all of our work, whether it was 3-D modeling, 2-D drafting, digital imaging, desktop publishing, spreadsheet development, or database management," explains Meyer, who saw the opportunity to get firm designers to use the system.

"I think a traditional CAD solution perpetuates segregation of users and non-users," says Meyer. "This limits the decision-making capabilities of upper managers. Working directly with a system enables our primary decision makers to know exactly what can be done and how long it takes to do it." Potential benefits were yet to be proven prior to acquisition. As a result, Meyer's task of selling his vision to the firm's executive committee was not easy. "We had an enormous investment in the existing systems," explains firm principal Wayne Koch.



For 184 High Street in Boston, a cibachrome of a 35mm photograph, scanned into a computer and enhanced using photograph-manipulation software, results in a photorealistic simulation of proposed renovations.

But the work coming out of ADD Inc.'s new system made Meyer's point. Most programs have consistent features: pop-down menus, icons, windows, a mouse-controlled pointer, dialog boxes and buttons, scroll bars, cut-and-paste, etc. Thus, the firm discovered that a range of software programs not traditionally associated with the architectural field was useful for design. Rather than taking the weeks required to get up to speed on their previous system, the firm's designers could attend training sessions in the morning and have quality presentation drawings the same day. "We do a lot of programming, as well as design," notes Koch. That is the reason the new system was particularly appropriate. The move also made economic sense.

Although some argue that ADD Inc.'s solution is expensive compared to PCs, Meyer says these costs are negated by savings in training and computer-administration time. For example, the system makes it easier to perform backups and develop layering conventions.

Enhanced capability

Because the new technology prompts greater integration of office functions and computer use by everyone in the firm, it reduces turnaround time for the firm's drawings, specifications, change orders, etc., and increases profits. The graphic quality of presentation, marketing, and production materials has improved, and there is a greater range of presentation options available. Moreover, filing and keeping records is done by the system, meaning that the professional staff is more sophisticated in manipulating and presenting data to clients.

Since the beginning of 1993, ADD Inc. has gone from eight Macintosh systems to 30, ranging from the lowest-level model, the Classic, to a higher-level model, the Quadra 700. Most of the firm's computer stations are Mac IIci's. ADD Inc.'s networking capabilities revolve around AppleShare 3.0, while existing PCs run on their own XENIX network. Each PC also has an AppleShare card that allows it to see ADD Inc.'s file servers. With this setup, 80 percent of the firm's work—from marketing and administration to design, presentation, and production—is computer-based.

Sales/marketing

Using its current system, ADD Inc. can present clients with quickly grasped perspectives and diagrams of design ideas. Using simple software, the firm can take straightforward drawings and turn them into extraordinary marketing presentations without adding to expense. For example, a recent project was a quick design study of how a client might renovate the entry to 184 High Street, a tower in Boston's financial district (photo left). Rather than produce a set of architectural drawings, the firm used a snapshot of the building and PhotoShop, a photograph-manipulation program developed by Adobe Systems, Inc. After

[illegible] lance writer in [illegible], Colorado.

Now, principals, project managers, designers, and technical and support staff themselves work the new technology.

leaning up the photograph by enhancing he sky and removing cars, street signs, and edestrians, the architects offered the client everal photographic images of options for ignage and lighting. All of the work came o less than eight hours of computer time.

That would have been impossible using our revious systems," says firm principal Mark Glasser. "Without running up significant osts, we could have developed only a and-drawn perspective that would give the lient a more limited number of less realistic iews."

Of greater sales and marketing importance, owever, is ADD Inc.'s design and roduction of project storyboards. By ombining several images from a variety of oftware products onto one presentation oard, the firm offers a client a graphically omprehensive representation of the project.

For example, a building-owner client trying o lease office space in a competitive market an present a prospective tenant with a board howing a space plan, stacking diagram, ocation map, and exterior and interior hotographic images of the building's menities. Furthermore, these boards can be asily customized to that tenant by selecting nd integrating images that respond to the enant's particular concerns.

Design

ADD Inc. assigns one team to a project hrough all design phases. Design concepts re generated both by computer and by and. Illustrations of multiple concepts ften are done on computer, allowing the lesign to be developed in a dual process with and sketches and computer planning. Data, uch as site characteristics, are gathered by oth hand and computer. The presentation naterials can be generated by the computer nd perspectives finished by hand. Design-levelopment work is directly converted to onstruction documents on CAD.

Appropriately, the first project that went hrough all phases on ADD Inc.'s Macintosh nachines was an Apple sales office at One Federal Street in Boston. The narketing proposal, many of the design and presentation materials, and the construction documents were produced on the computer. ADD Inc. also is creating designs for the renovation of the 38-story building. The storyboard (below), illustrating the approved space plan for Apple's sales offices, also helps the building owners market the upper floors. The storyboard shows potential tenants their space as seen from inside and outside the building, as well as their views.

Technical

ADD Inc.'s move to the new equipment solves the firm's previous problem of deciding which projects to put on CAD. This decision typically hinged on whether the project was large enough, if there were enough repeatable items, etc. The new ease of use makes CAD practical for all of the firm's projects.

In addition to improving drawing clarity, ADD Inc.'s systems have been developed to improve gathering, manipulating, and presenting related project information. For example, for the 1.1-million-square-foot Silver City Galleria in Taunton, Massachusetts, the firm responded to one client's need by developing a tracking program for tenant design and construction, which significantly reduced the owner's need for a tenant-coordination staff. ADD Inc.'s staff also uses its system to produce programming studies that can be easily manipulated as the client's needs emerge, and to store files of typical architectural details, graphic presentation formats, and shop-drawing logs.

Despite the Macintosh mania that pervades ADD Inc.'s office, the firm does not have an affiliation with Apple. Merely, ADD Inc. is promoting a theme: use a simpler, more effective form of technology. ADD Inc. discovered that giving design-oriented people the equivalent of a turbo-charged parallel rule allowed them such benefits.

When Renaissance artists developed the perspective, it propelled architecture onto a higher plane of communicating space and form. Perhaps history will show us that architecture truly entered the computer age when clever people were given simple computer tools to solve complex tasks. ■



For One Federal Street, this storyboard was created using images produced on CAD and digital-imaging systems within a desktop-publishing program, resulting in a varied yet integrated series of images.

Inexpensive Windows CAD

MacDraft for Windows

By Steven S. Ross

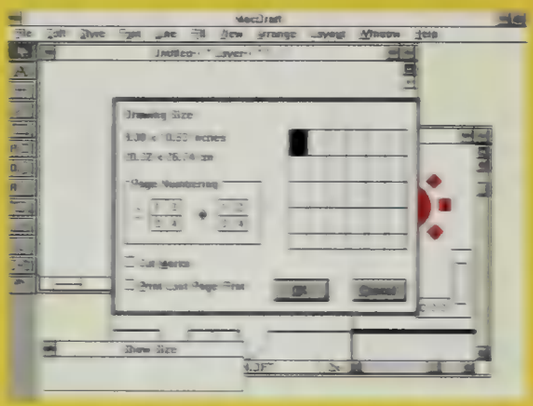
Inexpensive but highly capable 2-D CAD software is beginning to appear for Windows. Even though Windows offers a standard interface, however, vendors don't have to use all of it to take advantage of Windows utilities such as printer and plotter drivers, and the clipboard for data exchange. Thus, their different approaches have created some confusion in the marketplace. The three packages discussed here are at about the outer limits of diversity in this category—with quite different strengths and weaknesses. All are available on the street for well under $400.

About the closest Windows product to these in price versus performance is Drafix from Foresight [reviewed in RECORD, February 1993, page 39]. At $695 list, it is more expensive, but street prices are lower.

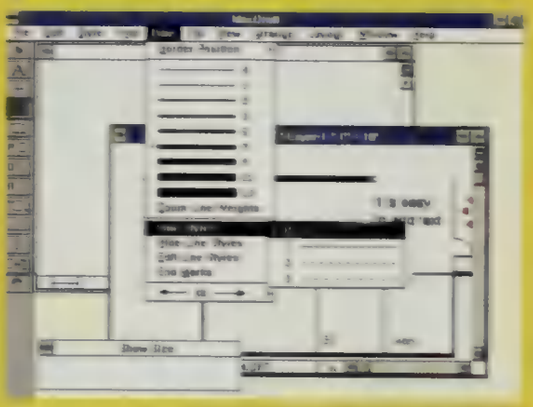
MacDraft for Windows has an interface and command conventions almost indistinguishable from the Macintosh software from which it was derived. The file structures of the drawings produced by the two versions are different, but a good translator is free.

AutoSketch for Windows comes from the AutoCAD folks. It has an impressive suite of drawing tools (and a clever way of deciphering which tool is which), but can open only one window at a time and can exchange files only via DXF.

TurboCAD Professional from IMSI is far more capable than the firm's older DOS version, and has better file exchange capabilities, including DXF and IGES. ■



MacDraft for Windows—setting up drawing size: you normally save drawing settings as "stationery" that can be recalled to apply the style to a new drawing.



Line styles can be edited in MacDraft, but you can't get a hollow double line.

This 2-D drafting program, as advertised, has the look and feel of the Macintosh version—the most widely used Macintosh 2-D drafting package. You can keep up to four drawings or symbol libraries open at one time, and cascade or tile them on screen. Those who use Macintosh System 7's Apple File Exchange utility can translate drawing files back-and-forth inside the Mac. For those who need to translate inside the PC, a free converter comes when you register MacDraft by mail.

The multiple-document feature, combined with the ability to load a specific layer from one document into another, allows you to move scanned TIFF (Tagged Image File Format) images (for backgrounds and the like) into your drawings.

MacDraft for Windows Summary

Equipment required: Any DOS computer capable of running Windows. Mouse (ratchet than digitizer) recommended. VGA screen (color recommended). The program files take about 2 MB on disk. It will run on systems as crude as 80286 with 1 MB of RAM and EGA screen, but an 80386SX is more comfortable. The more memory you have, the more layers are available; 4 MB is comfortable.

Vendor: Innovative Data Design, 1820 Arnold Industrial Way, Suite L, Concord, Calif. 94520; 510 680-6818; fax 510 680-1165. $300; unlimited technical support by phone.

Manual: A single spiral-bound book—well written and well illustrated—contains refe

As in many Macintosh programs, you save styles for different types of drawings by saving "stationery" files containing specific images, default settings, text, and so forth. Loading stationery files overrides whatever default settings you may have when you open the program.

The palette of tools is permanently placed o the left of the screen; you can hide it, to increase drawing area, but you can't move it around the screen. You change styles by using the pull-down menus. Thus, to draw a thick line (to represent a wall, for instance) you go to the pull-down "line" menu, choose a line style, then go to one of the line tools i the palette—a line constrained to horizontal or vertical, for instance, or the polygon or rectangle tool. There is limited editing of lin styles, but no way to get a double parallel line (favored by many drafters for representing walls). You can also edit colors and fill patterns.

Whatever fonts are loaded in your system (Windows TrueType fonts, for instance) are usable automatically inside MacDraft.

You can group objects by placing them on a specific layer, enclosing them in a fence, or clicking on them.

Freehand drawing options include the standard bezier and splines.

ce material and tutorials.
ise-of-use: Smooth and fast. File sizes are
ite small, even when many areas are
ed—each fill pattern is only stored once:
e fill lines are not considered separate ele-
nts by the drawing. It is easy to save
ctions of your drawing inside symbol li-
aries. In general, you export or import
ta through the Windows clipboard.
ror-trapping: There's an undo command
undo the last action), a redo (to put it
ck), and a "revert," which opens the last
rsion you've saved to disk. When you
ve from window to window among the
ur documents that can be open at once, the
do and redo commands refer to each sepa-
te window. Aside from that, you can
ly undo the last command in each
indow. ■

acDraft is a compact, fast program. Each
yer can contain as many as 15,000 objects,
hich certainly would slow things down if
u approached the limit. But most uses in-
lve just a few hundred objects per layer,
the most.

acDraft invites "sketching" with its vari-
s curve tools; if you don't quite like a
ape or a line, you can edit, smooth, or
ase sections of it. Polygons or polylines
n be smoothed only once, however; to edit
em, you erase a section, draw a replace-
ent, and then smooth the resulting image
gain. Even the dimensioning (areas and
ngths) is dynamic.

ffices that use MacDraft on the Macintosh
ould find MacDraft for Windows particu-
rly attractive. So should those for whom
st is a big consideration; less than $1,000
orth of hardware runs this package com-
rtably (compared to close to $2,000 worth
Mac equipment). But it is more difficult to
e MacDraft with other packages because
anslation capabilities are limited. And the
ac version seems faster on low-end Macs
an the Windows version does on low-end
Cs. *Circle number* **306**

AutoSketch for Windows

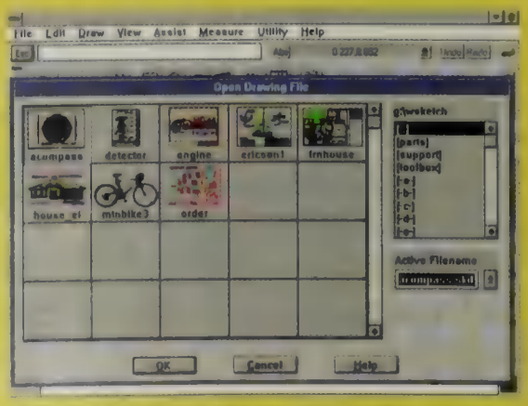
AutoSketch from Autodesk requires the most disk space and machine resources to use comfortably. AutoSketch contains all of the drawing tools of MacDraft except rectangle with rounded corners. It does do automatic fillets and chamfers (although you have to draw both lines to make a wall, the intersections clean up quickly). There's also a simple macro language.

AutoSketch makes it easy to import or export drawings—whole or layer-by-layer—as DXF files. AutoSketch also uses the clipboard, and is a fully functional OLE (object linking and embedding) server. That is, you can link an AutoSketch drawing with any document that accepts object embedding—Excel and Word for Windows are examples. Although you can copy a drawing or a section of a drawing out through the clipboard as a bitmap for OLE, you cannot bring a bitmap in—unlike MacDraft.

Its "file open" facility is strictly non-Windows, but extremely practical; it displays thumbnail images of the files themselves. The symbol libraries work the same way—handy, because the package comes with 2,000 symbols (about a third of them architectural). You can only keep one window open at a time, however.

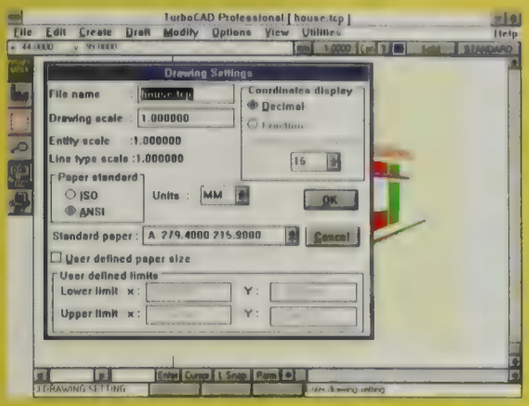
Another example of how AutoSketch exists in Windows but not quite as part of it: It

Continued on page 120



All right, it's not the standard Windows interface. But you can't deny that picking the file you want from thumbnail illustrations is convenient in AutoSketch for Windows.

TurboCAD Professional



Settings sheet in TurboCAD Professional is straightforward.

An entirely different product from the inexpensive TurboCAD DOS version that IMSI has been selling for years, TurboCAD Pro uses different hot-key commands, a different file structure (it can import files from the DOS version), and a surprisingly advanced macro language (it looks a lot like BASIC; IMSI calls it DPL for Drafting Package Language).

Out of the box, this is the only one of the three packages that can actually draw parallel lines quickly for representing walls in plan (you draw a single line or curve and then specify an offset with the "parallel" drawings tools).

The package comes with import and export programs for DXF, IGES, and INT (drawings produced by the DOS version of TurboCAD). These converters actually run under DOS, but are accessible from icons in Windows. We had some trouble with INT conversions; a better module is promised by the time you read this.

Dimensioning is associative. There's a wide range of dimensioning tools (ISO and ANSI), import of straight ASCII text from word-processing files (or Windows Write or the Notepad). There's a good symbol library facility but no symbols are actually included with the package.

Using all three mouse buttons takes some getting used to, but it allows you to change some settings on the fly. The use of the

Continued on page 121

The Monograph as Monument

Emilio Ambasz Inventions: The Reality of the Ideal, *New York: Rizzoli, 1992, 360 pages, $65 (cloth), $40 (paper).*
Leon Krier: Architecture and Urban Design 1967-1992, *edited by Richard Economakis. London: Academy Editions, 1992, 299 pages, $80.*
Scogin Elam and Bray: Critical Architecture/Architectural Criticism, *edited by Mark Linder. New York: Rizzoli, 1992, 224 pages, $60 (cloth), $35 (paper).*

Reviewed by Nancy Levinson

In recent years, the monograph has achieved an odd status in the architectural world—popular with both readers and subjects, but so predictable in its format that it has become almost a cliché. For architects whose work exists mainly as drawings and models, the monograph has become the monument.

Both *Emilio Ambasz Inventions: The Reality of the Ideal* and *Leon Krier: Architecture and Urban Design 1967-1992* follow closely what has become typical monograph style. Each provides a largely chronological record of projects, explained bountifully in images and more or less scantily in text. Each is an impressive, well-produced object.

The Krier book is the more ambitious, more fully conceived and satisfying of the two. Using an oversized format, Academy Editions has devoted 300 pages to documenting all of Krier's projects and many of his major writings. The editors and designers have artfully packed the pages with Krier's provocative diagrams and sketches, and with his impassioned polemics against Modernist planning; they've also included lucid essays by Demetri Porphyrios and David Watkin.

Given the book's scope and achievements, it is disappointing to discover that the editors have neglected to include some pertinent information. Many of Krier's projects were losing entries to invited competitions. The project descriptions, however, do not tell us who won the competitions or how the designs subsequently developed. And, unfortunately, the book contains neither a bibliography of publications by and about Krier's work nor a bibliography of its subject.

Rizzoli's book on Emilio Ambasz does include a full bibliography and a biography of the Argentine-born architect. The bulk of the book concerns Ambasz's urban, architectural, and industrial-design projects from 1988 to 1991. Like the publisher's 1988 monograph on Ambasz, *The Poetics of the Pragmatic*, it transports us to the designer's striking and idiosyncratic world of buildings fused with landscape. Eighteen architectural works are presented here.

Whatever one thinks of Ambasz, the monograph has succumbed to one of the limitations of the genre: too little heed paid to text. An overview of Ambasz's career by Peter Buchanan has insight, and Ambasz's own writings, eight of which are reprinted here, are always absorbing and often inspiring. But the essays by Tadao Ando and Fumihiko Maki—both of whom are also the subjects of recent Rizzoli monographs—are little more than appreciative comments, more suited to an awards dinner than a major publication. And the foreword by composer Ryuichi Sakamoto, who scored the television show *Wild Palms*, consists mainly of New Age platitudes, such as, "If I were the chairman of the committee for the Return of the Entire Humankind to Earth, I would first go to Mr. Ambasz and ask him to be our architect."

Even less satisfying are the brief descriptions that accompany the architectural projects. Written (it's not clear by whom) in the partisan but bloodless style of the marketing brochure, they give only the most literal information about design and site.

In contrast to the Ambasz monograph, *Scogin Elam and Bray: Critical Architecture/Architectural Criticism*, also from Rizzoli, has been conceived as an equal pairing of image and words. Based on a 1990 symposium held in the architects' hometown of Atlanta, the book includes excerpts of discussions and critical essays by participants Mark Linder, Ann Bergren, Jeffrey Kipnis, Alan Plattus, Anthony Vidler, and Jennifer Wicke. Interspersed throughout the writings—in some senses illustrating them—are 13 projects by SEB, as well as a sampling of Mack Scogin's extraordinary sketches. Beautifully presented in color and black-and-white photographs and drawings, the projects include such well-known works as Chmar house and the Clayton Country and Buckhead libraries.

How one responds to the essays, whether they seem enlightening or exasperating, will likely depend on one's predilection to what a contributor calls "the contemporary theoretical moment." As those familiar with this "moment" know, the heart of the matter, the real obsession of much current criticism is less architecture itself than the literature of architecture and the application of various literary, linguistic, philosophical, and esthetic theories to architecture. And so it is in these critical journeys for which the work of SEB and other architects serves mainly as a point of departure.

The various contributors occasionally lament that architectural criticism seems to interest few in the profession. As Linder admits, "the theoretical enterprise has yet to earn the respect of the common practitioner." Their concern is to the point. At the risk of emphasizing form over content, one wants to suggest that criticism might attract more followers if its practitioners wrote clear English prose. All six critics are members of what Linder calls, with disarming matter-of-factness, "the present theory club." Considered from this perspective, their use of words like "reify" and "privilege" as a transitive verb, of cumbersome neologisms like "dedisciplinize," "problematize" and "intertextuality" amounts to the linguistic equivalent of a secret handshake.

While all these books are handsome to look at, they aren't as carefully produced as they should be. We find faulty punctuation, misspellings, words run together, and instances where one word is used where another was surely intended. This kind of carelessness is all too common today—an outcome of dramatic cutting of editorial staff budgets by those who manage publishing houses. The high quality of the architecture and urban design showcased in these monographs results from what Krier at one point calls "precision, minute attention to detail and fanaticism." These designers deserve as much from their publishers. ■

andmark American Bridges, *by Eric eLony. New York: American Society of ivil Engineers, 1993, 152 pages, $40.*

his is a splendid book. Centered around notographs and drawings rather than elab-ate descriptions and structural analyses, is work by the chief of the Historic Ameri-n Engineering Record (HAER), an arm of e National Park Service, provides a stimu-ting insight into those crucial engineering mponents that glued together the nation's ad and rail network across the rivers and nyons that had for centuries broken up e continent into isolated communities.

he book comprises five eras or typologies—e-Civil War canal and railroad bridges, ivil War-era metal-truss bridges, the Amer-an Standard Bridge and its kin, great river idges, and modern works. Each bridge pically receives two pages with concise ata and a "box score" with credits and ates. Most appealing to the architect's eye e the varying scales, the interplay of eavy load-bearing and light tensile mem-ers, the play of light and shadow, and the ndscape contexts of this most technically egant of mankind's artifacts.

y only quibble with the text is an excess of hat I call the baseball stats game—"this is e second widest, earliest, third longest sus-ension bridge," and so on. Such games, ough, don't detract from the joy of owning r studying this important book. *S. A. K.*



uaquaga Bridge, 1888, Ouaquaga, N. Y.

Redefining Designing, *by C. Thomas Mitchell. New York: Van Nostrand Reinhold, 1992, 162 pages, $35 (paper).*
From Idea to Building: Issues in Architecture, *by Michael Brawne. Oxford: Butterworth, 1992, 240 pages, $53 (paper).*

Reviewed by Naomi Pollock

Both *Redefining Designing* and *From Idea to Building* are concerned with the design process. In the former, C. Thomas Mitchell criticizes architecture that emphasizes the visual aspects of building over function and explores several user-sensitive approaches to design. In the latter, Michael Brawne doesn't aim to reform but rather to analyze the design process along the lines of a scientific model first developed in the 1920s.

Mitchell, a professor of design and director of the Center for Design Process at Indiana University, argues that design approaches to date have failed because they have not fulfilled user needs. According to Mitchell, the form of Modern architecture did not follow function but instead was driven by technology, resulting in buildings that stressed universal solutions, not individual client needs.

The pluralist attitude of Postmodernism, says Mitchell, was an improvement, but fell short for it continued to focus on the artistic value of architecture. And Deconstruction seems to have washed its hands completely of any obligation to functional requirements.

As an alternative, Mitchell exhorts designers to learn from user-responsive theories, such as the design methods movement founded by John Chris Jones and Christopher Alexander in England in the 1960s. Though this movement failed to have a significant impact on the design process, it did spawn Alexander's "pattern language" that emphasized the critical link between patterns of activity within a space and the layout of that space. It also provided users with a means to shape their environment.

The key to the work of Jones and Alexander is its emphasis on people's experience as opposed to the design of beautiful objects. One of the most convincing applications cited by Mitchell is an office created using the "collaborative environmental design" method in which architect and client work side-by-side through the medium of models. The goal was not a formal object, but rather a building that addressed the users' experience of the space.

On the other hand, Brawne, an architect who taught at the University of Bath in England for many years, accepts function as but one aspect of architecture responsible for user satisfaction. In his view, people comprehend buildings through an intricate web of memory, and visual and kinetic stimuli that often defy verbal description and are not responsive just to practical user needs.

Instead, Brawne favors a broader basis for design that is analogous to philosopher Karl Popper's evolutionary, scientific model, formulated in Vienna in 1920. The model begins with the statement of a hypothesis which is criticized and revised, resulting in a solution that, in turn, presents a new hypothesis, triggering the process all over again. In architecture the hypothesis is the initial response to a given design problem and takes the form of some existing model. This model is then altered to fit the project's particular constraints, which leads to the creation of a new design. Brawne uses as an example Le Corbusier's La Tourette monastery, which he says was modeled after a Greek monastery the architect saw as a teenager.

To further illustrate his point, Brawne devotes a chapter to a detailed description of the design process he undertook while working on the National Archeological Museum in Amman, Jordan. Here readers can see the Popper model at work in all phases of design—from the parti (inspired by the Uffizi Gallery in Florence), down to window details (evocative of traditional Islamic window grilles that control light and view).

Both books raise important points about how architects think about and design buildings. While neither book tells the whole story, they both describe valid approaches to design and call attention to the fact that there is no single best way to approach this thing called architecture. ■

Briefly Noted

Hospital Interior Architecture: Creating Healing Environments for Special Patient Populations, *by Jain Malkin. New York: Van Nostrand Reinhold, 1992, 488 pages, $150.*
Thoroughly researched and carefully organized for ease of use, this thick volume is an excellent resource for any designer working on healthcare facilities. Malkin, an interior designer specializing in healthcare, devotes the first few chapters to general issues of creating a healing environment, then focuses the rest of the book on particular types of facilities, including children's hospitals, cancer centers, diagnostic imaging centers, congregate-care centers, and psychiatric facilities. The book is well illustrated with color and black-and-white photographs, floor plans, and drawings, and has indexes organized by both subject and project. Almost all of the selected projects are in North America and the general quality of their architecture is quite high.

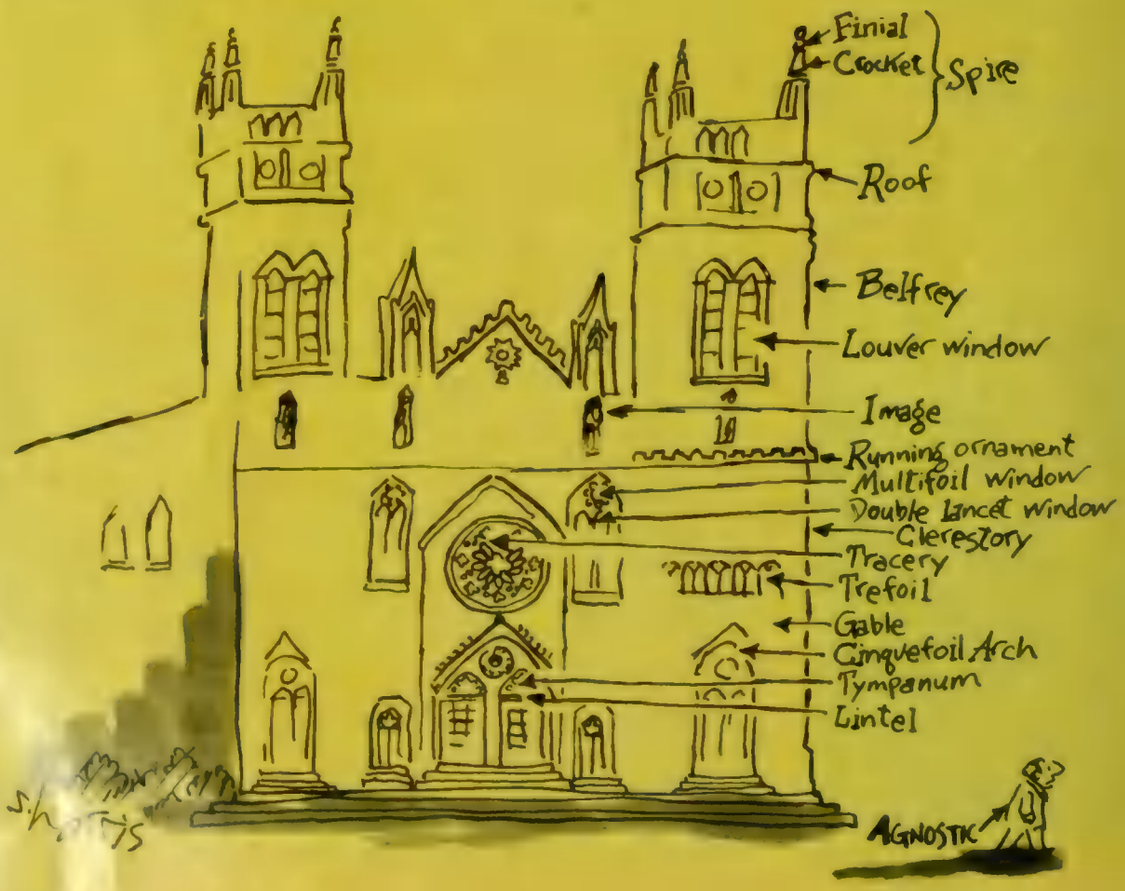
Primary Health Care Centres, *by Martin S. Valins. New York: John Wiley & Sons, 1993, 206 pages, $60.*
Written by a British architect, this book looks at community-based healthcare facilities in six different countries: the U. S., the United Kingdom, Finland, Japan, Denmark, and Sweden. The author provides sketchy introductions to each country's healthcare system, then follows with case studies of individual projects—most of which are innovative examples of healthcare design.

Hospital Design for Healthcare and Senior Communities, *by Albert Bush-Brown and Dianne Davis. New York: Van Nostrand Reinhold, 1992, 288 pages, $50.*
A collection of essays by 60 different contributors, this book looks and reads as if it were designed by committee. Disorganized and filled with mostly grainy black-and-white photographs, the book offers texts that range from useful to trite.

Hospital Space Programming: Guidelines for Departmental Space Requirements, *by Kenneth N. Dickerman. Jacksonville: Health Facility Publishers, 1992, 288 pages, $295.*
This loose-leaf-binder publication is a workbook for architects and hospital administrators involved in space planning. Areas covered include inpatient nursing services, medical ancillary services, and administrative services.

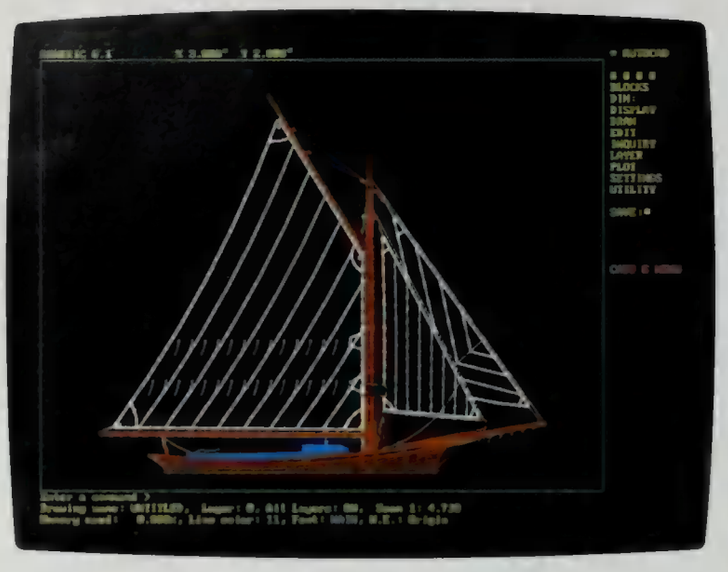
Changing Places: Remaking Institutional Buildings, *edited by Lynda H. Schneekloth, Marcia F. Feuerstein, and Barbara A. Campagna. Fredonia, N.Y.: White Pine Press, 1992, 430 pages, $30 (paper).*
A collection of essays on adaptive reuse, this book focuses mostly on renovating and recycling old hospitals. Several of the essays look at H. H. Richardson's Buffalo State Hospital for the Insane. ■

Drawn for ARCHITECTURAL RECORD by Sidney Harris




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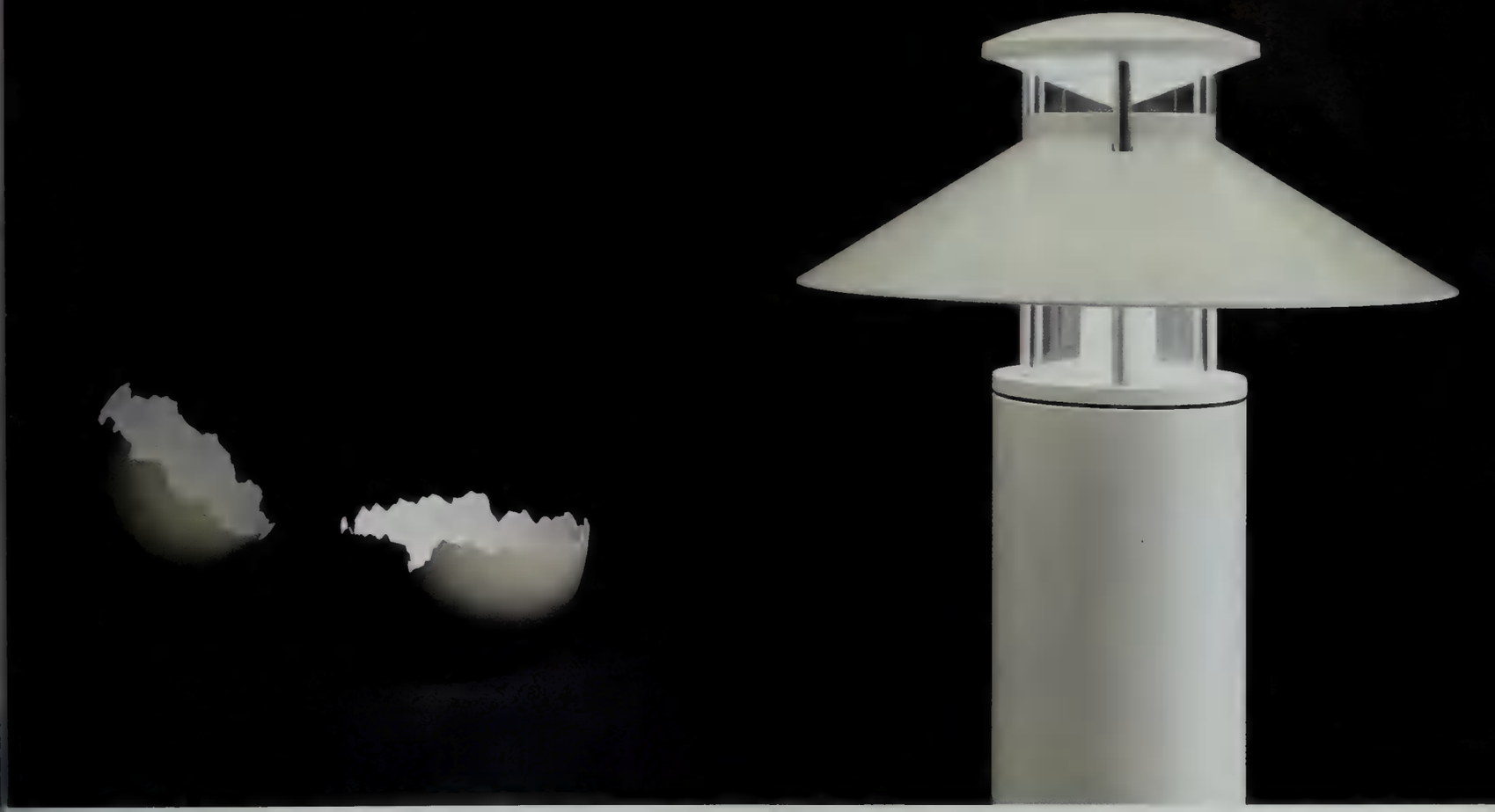
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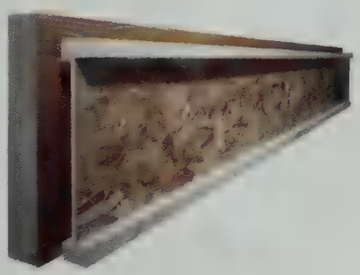
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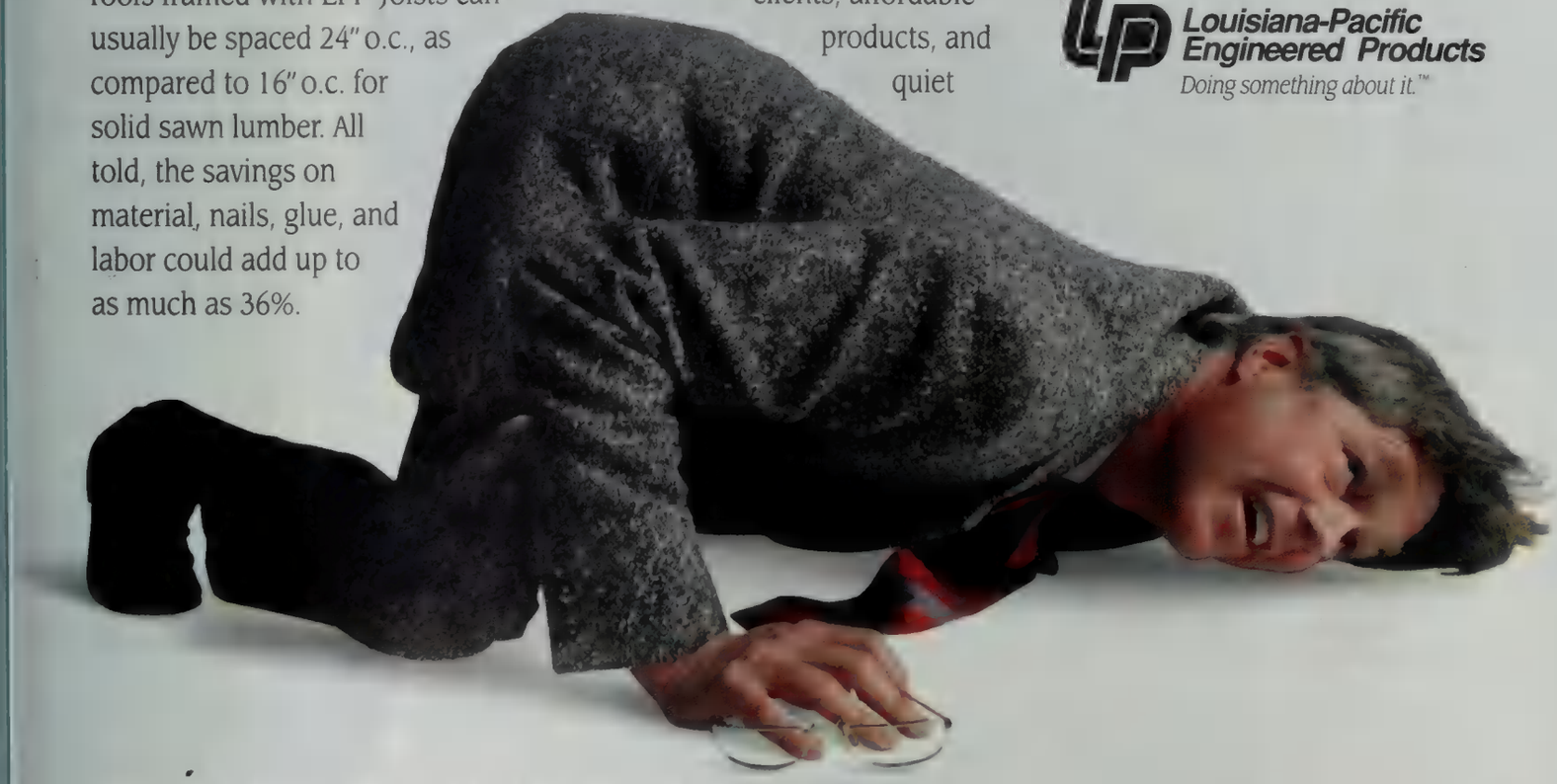
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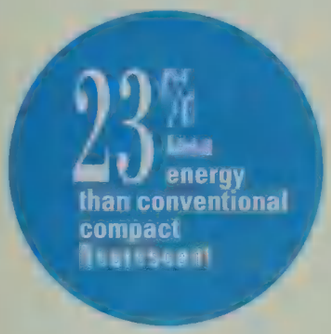
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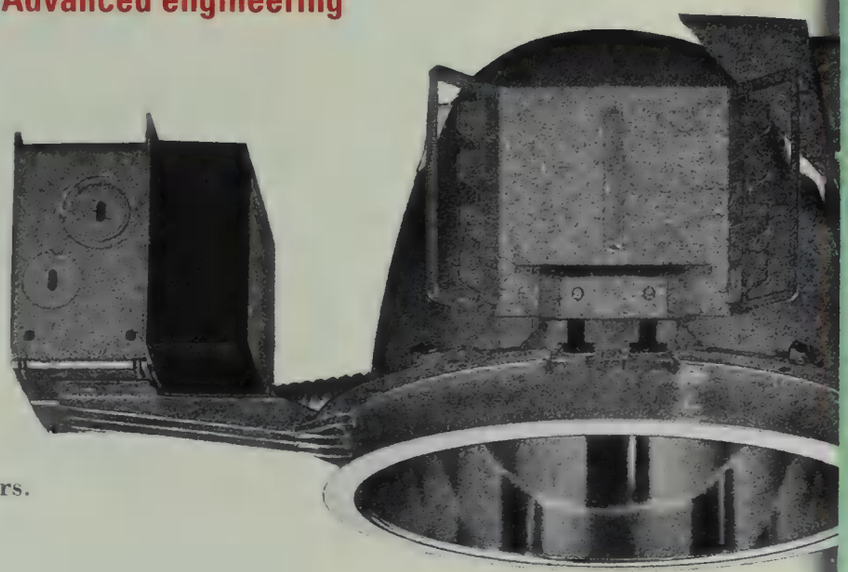
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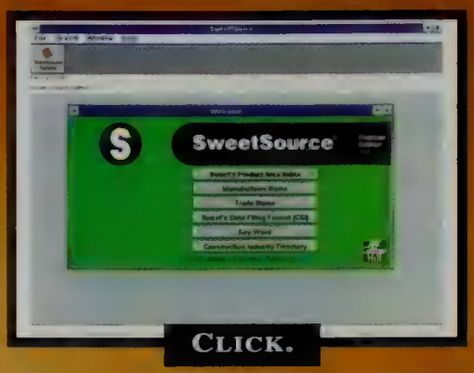

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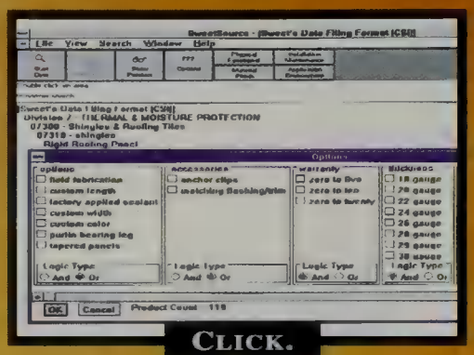
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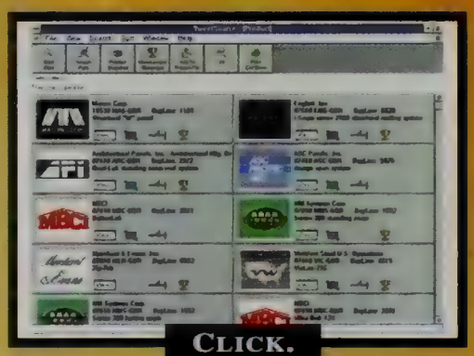
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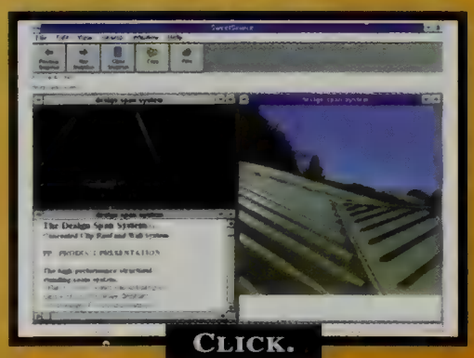
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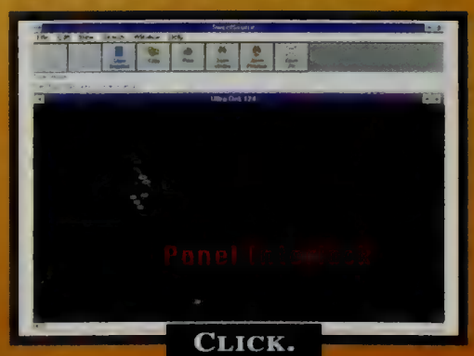
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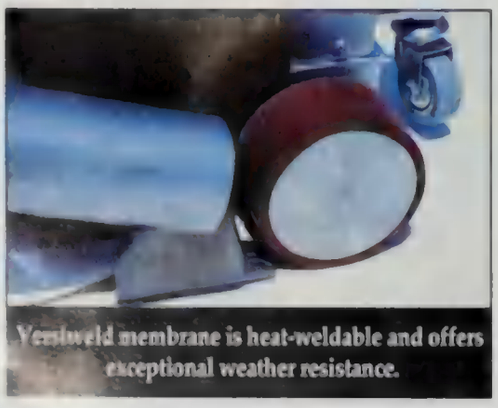
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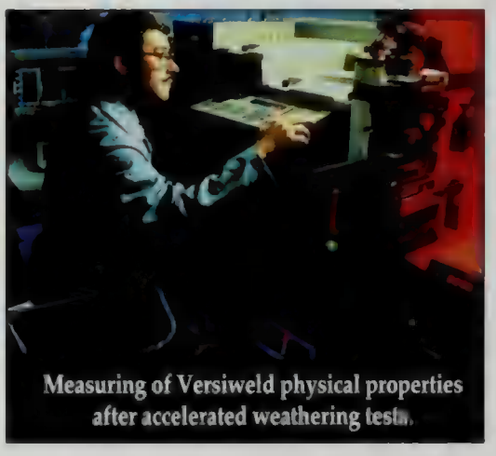
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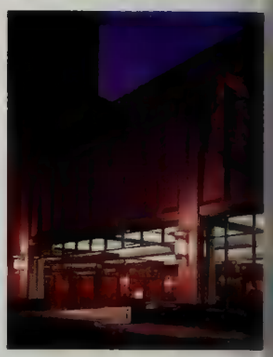
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Building Types Study 709/Record Interiors

Inspiration is that elusive quality that drives design; when it's fully realized, it has the power to move the intellect or emotions. Architect-artist Lauretta Vinciarelli describes her watercolors of imagined spaces (page 106) as "metaphors for [different] states of mind." Though the other designers whose work received the 24th annual RECORD INTERIORS award created actual places, none was satisfied with a merely functional response. Many architects made architectural analogies that illustrate in three dimensions some aspect of who the clients are or what they do—at the same time resolving a complex array of technical and financial requirements. The flowing and serene spaces of Tod Williams and Billie Tsien's showroom for Go Silk, for example, display characteristics similiar to their client's fabrics and clothing designs (page 78). Similarly, Jane Sachs's low-budget remodel for B. B. Dakota, a clothing-design and import company, stitches together old and new with ingenuity (page 102). The frenetic energy of a computer chip is captured in Valerio Associates' offices and production space for a computer-equipment manufacturer (page 84). And the clean elegance of Jil Sander's Paris boutique, by Gabellini Associates, is the architectural equivalent of the fashion designer's clothing (page 90). Some clients' desires are as vague as Smith-Miller + Hawkinson's commission for a "happy home" for a New York City family (page 110), or as specific as Yabu Pushelberg's charge to shoehorn 2,000 Broadway-style theater seats into a tight Toronto site (page 96). As Vinciarelli notes: "Our aspirations have spatial counterparts." *K. D. S.*

Manufacturers' Sources listed on page 139

Understated



Go Silk Showroom
New York City
Tod Williams Billie Tsien and Associates, Architect

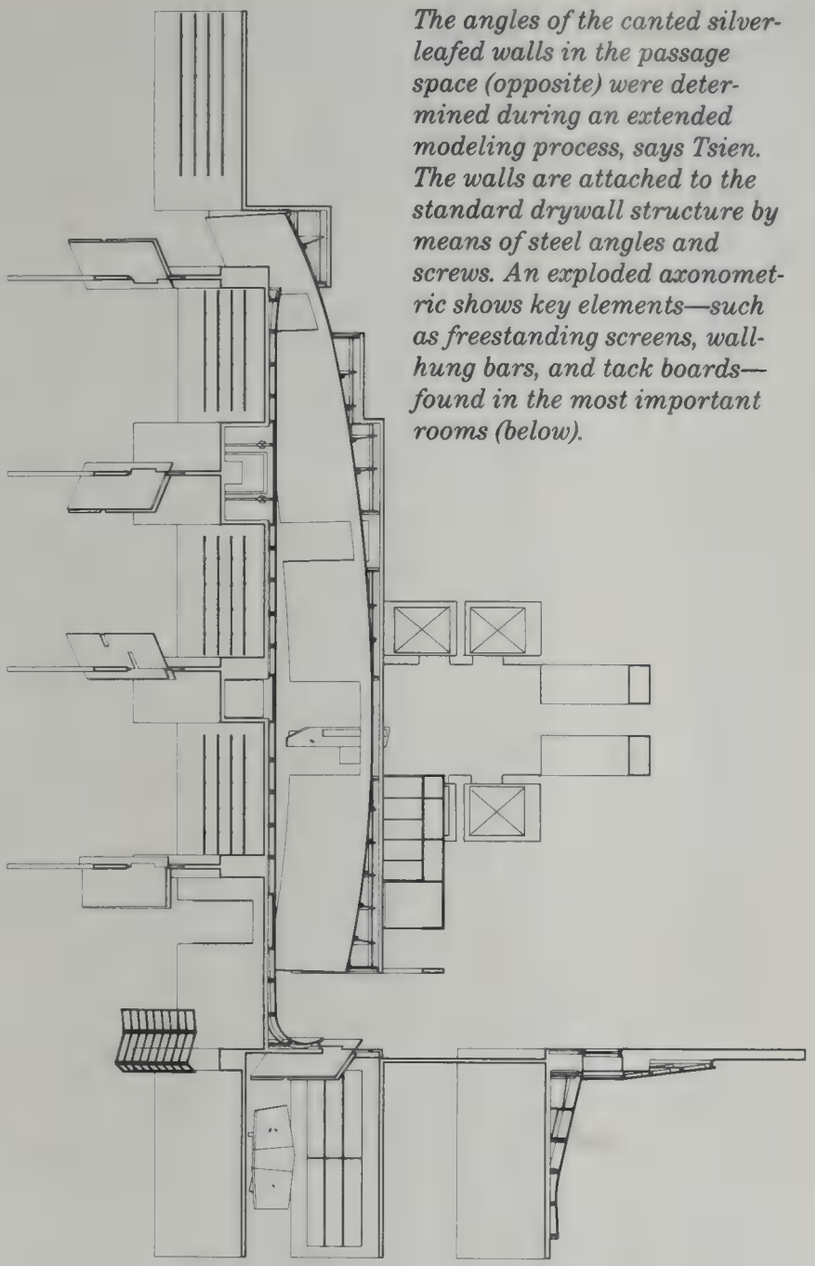
n the razzle-dazzle, go-go world of fashion, sometimes the best way to get people's attention is to whisper. This approach has infused the simple, flowing designs of Go Silk's clothes, and can now be seen in its New York City showroom and office. Designed by Tod Williams Billie Tsien and Associates, the new showroom speaks softly with a subdued palette of colors and a relaxed use of space. The effect on tightly wound buyers is remarkable. As they dash in from chaotic Seventh Avenue or from other showrooms in the same building, you can almost see them sigh with relief.

"We call it 'the decompression chamber,' " says Jerry Hirsch, the president of Go Silk, in reference to the gently curving central space that is the heart and soul of the 7,500-square-foot facility. In a Zen-like use of space, Williams and Tsien kept this room empty to emphasize its importance and its special role. "The space is all about being quiet," explains Tsien. Defined by sloping wood walls projecting out from standard drywall, the room acts as a passage between the small reception area and a row of individual showrooms. The angled walls have hand-applied silver leaf on the front side and a deep maroon stain on the back, giving the room an ethereal quality one step removed from the hustle-bustle of Manhattan. Reinforcing this sense of emotional retreat are floor tiles made with coir (which comes from coconut husks) and a ribbon of silk that is draped from the ceiling and stretches the length of the room. Light from fluorescent fixtures recessed behind the tops and bottoms of the projecting walls adds a final touch, creating the illusion that the walls are floating in space.

The five showrooms entered from the passage space are modest rooms where simple elements such as brushed-aluminum bars, multipaneled wooden screens, and aluminum-tube furniture designed by Jonas Milder don't upstage the clothes on display. Layered-plywood doors, stained the same maroon, seem to be taken from an exotic wooden puzzle and serve as the strongest visual elements in the rooms. With the doors closed, the rooms function separately; with the doors open, they work as an extended showplace with a runway down the middle. The spare style of the showrooms is continued in the conference room and the president's office, which occupy the western portion of the floor and take advantage of excellent views of the city and the Hudson River. Back-office space wraps around the south and east sides and is built simply, with painted drywall.

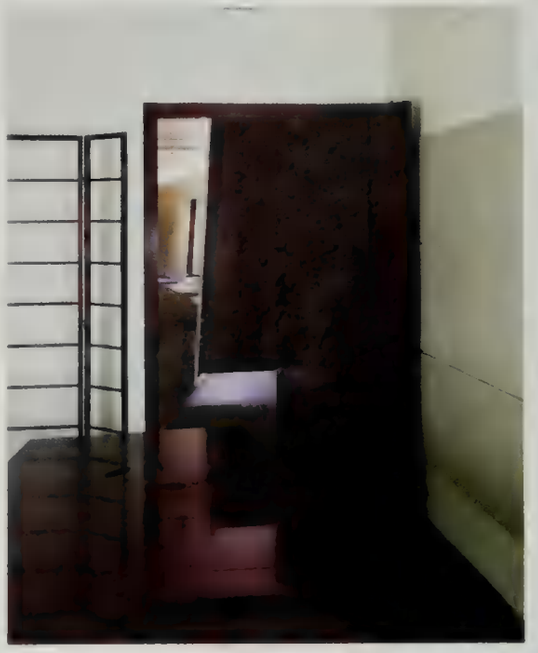
Here, as in many of their other projects, Williams and Tsien experimented with novel ways of using humble materials. Both the reception desk and a conference table are made of laminated and sawn flakeboard and particle board, also stained a rich maroon. To reveal the striations in these layered surfaces, diagonal holes were bored through them. The random placement of the holes adds a touch of interest to the designs. In the conference room, tack boards are a type of fiber board made of recycled newsprint that Williams and Tsien have used in various projects over the years. Floor tiles in the showrooms are made of recycled tires and are more commonly found in high-traffic applications than in high-style settings. Although Tsien says she didn't make a special point of specifying recycled materials in this project, environmental sensitivity has become a given in her firm's work.

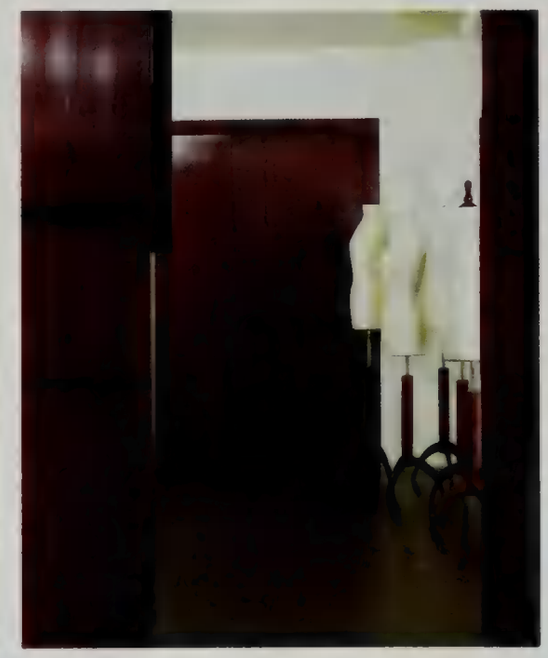
Williams and Tsien's relationship with Hirsch dates back 12 years now, and includes the interiors of his Greenwich Village apartment as well as designs for a store and a previous showroom for Go Silk. "This is a great work environment," says Hirsch of the firm's latest project for his company. "It's soothing." *Clifford A. Pearson*



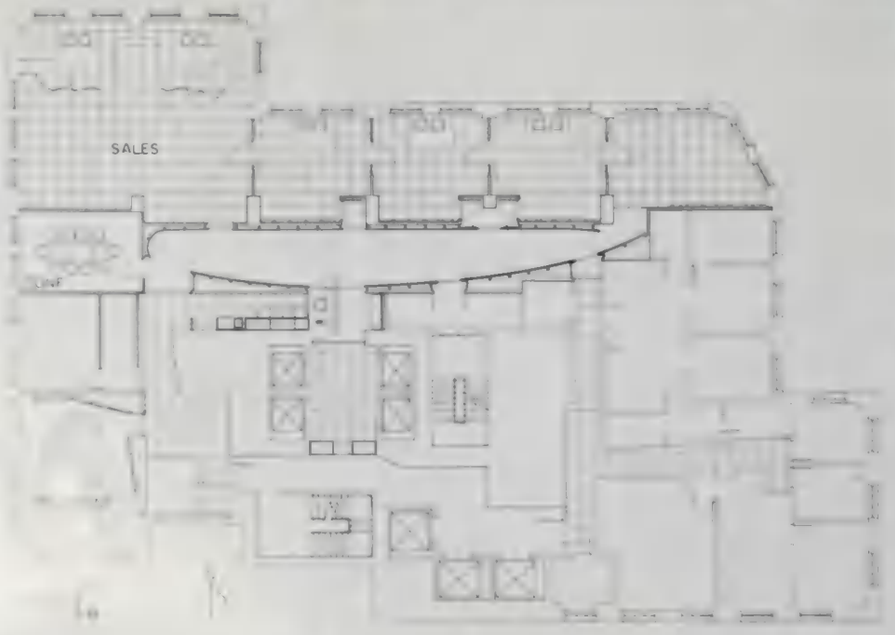
The angles of the canted silver-leafed walls in the passage space (opposite) were determined during an extended modeling process, says Tsien. The walls are attached to the standard drywall structure by means of steel angles and screws. An exploded axonometric shows key elements—such as freestanding screens, wall-hung bars, and tack boards—found in the most important rooms (below).











Up Close

A relationship evolves. Tod Williams and Billie Tsien have done work for client Jerry Hirsch for almost as long as Go Silk has been in business. Just a few years after the clothing company got started (and not long after Williams and Tsien established their firm), the architects designed a 3,000-square-foot showroom and a small apartment for Hirsch, both in New York City. Then they designed a Go Silk store in San Francisco. The earlier showroom featured black shoji-like screens and a more open plan. For the latest showroom, the architects wanted to simplify the design and use as few elements as possible, says Tsien. The needs of the client were also changing. "We wanted to work with some private spaces this time," says Hirsch. As a result, the sales space is divided into five different rooms that can be closed off to each other. Another difference is the size: the gross square footage of the new facility is almost three times that of the earlier one. Hirsch is very happy with the larger, simpler showroom. "The flow is great and everyone likes working here." Given $750,000 to work with, Williams and Tsien's project came in on budget and on time. "They're always good with the bottom line," says Hirsch.

The illusion of walls floating in space is enhanced by light from concealed fluorescent sources and a reception desk that slides into the curving passage area (previous pages). Salesrooms and a conference room (photos this page and opposite) were kept simple and are furnished with aluminum-tube tables designed by Jonas Milder and wood folding screens used for hanging clothes.

Credits

Go Silk Showroom
New York City
Owner: *L'Zinger International*
Architect: *Tod Williams Billie Tsien and Associates—Billie Tsien, Tod Williams, partners-in-charge; Martin Finio, project architect*
Engineer: *Ambrosino Depinto and Schneider (hvac)*
Consultants: *William Somerville (cabinetry); :USE, Jonas Milder (furniture)*
General Contractor: *Selby Construction*



Under the Golden Arches



Valerio Associates' interior renovation links a building's structuralist past with a view to the future.

Building U2
U. S. Robotics
Skokie, Illinois
Valerio Associates, Architect



Late 1940s strip-window Modernism is the prevailing esthetic in Skokie's industrial sector, and the facade of U. S. Robotics' Building U2 is no exception. But the banal brick shell masks a fully renovated interior, designed by Joe Valerio, that melds high-tech needs and low-tech materials with a built-in homage to early 20th-century structuralism.

"We retained what was usable from the original structure, namely the 'Modern' facade, the bowstring truss system, and the floor slab," explains Valerio, who gutted the 83,000-square-foot expanse that now houses offices, conference rooms, and production space for a computer-equipment manufacturer. Also spared the wrecking ball were the supporting columns, despite their awkward placement on the main entry axis. "Aligning those supports with the front door was part of the building's inherent ambiguity that we opted to embrace," he says.

Now, employees and visitors pass through several "layers" of Valerio's design, beginning with the outer shell and its strip of windows that provide most of the structure's daylight. Entering a gyroscopic reception area, a steel ring perched atop birch posts orbits the first of several columns that interrupt ambulatory progress towards the second "layer." Here, two window walls stretch 240 feet along the cross-axis, rhythmically alternating panels of clear glass and opaque birch with brushed aluminum casings. Managerial offices are sandwiched between these vaguely-1950s partitions, and look onto the third and last stratum, the production area, which includes a climate-controlled assembly room. "Transparency was a priority, but it was a delicate balance," Valerio admits. "The managers wanted both to see the manufacturing facility and maintain accessibility to the support staff, but they needed some sense of privacy too, which is accomplished by the alternating wood and glass."

Above, bowstring trusses support four ceiling vaults, two of which are punctuated by golden arches of glossy yellow plywood. Spanning 60 feet and crossing at the central axis, the arches skewer walls and dip into work areas, "focusing attention on the roof structure while bringing the vaults down to earth," according to Valerio. Further homage to the structural system is paid in the main conference room, where Valerio "captured" a truss segment, anchoring it within a cylinder carved from the dropped ceiling. "It was a simple, inexpensive way to add decoration," he says.

One of the most important aspects of the project was its schedule: seven months from kick-off to completion, thanks to regular weekly meetings with the client and contractor that resulted in an integrated, fluid team able to process decisions quickly. It continues to do so for dozens of other projects the "team" is now engaged in. "The meetings are essential," admits Valerio. "They keep everything moving along." *Victoria Lautman*



Up Close

The reception area. The lobby at U. S. Robotics leaves no doubt that visitors have entered a dynamic world beyond the mundane facade. Valerio immediately established the project's commitment to the truss system by "twisting one into a circle and anchoring it to the ground," creating a constructivist reception area with a column at its hub. Built of cost-effective birch glu-lams bolted to a steel pipe that "tips like a hat" towards the reception desk, the space is bounded by three canted walls behind which small meeting rooms are tucked. Walls, benches, and reception desk are of coated plywood, another economical material favored by Valerio and used in the vault "skins" that arch through the workspaces suspended by steel cables. "The ply's golden color brightened up a potentially gloomy interior," adds Valerio, who used linear fluorescent fixtures to provide up- and down-lighting, with standard factory lighting in the plant.

Barbara Karant, Karant + Associates photos



The spumoni-like layers of Valerio's design were partially dictated by the original building's axial plan (left), which was preserved despite its quirkiness. Little else was spared, including the entire electrical system, which was unexpectedly replaced, seriously straining the overall budget.



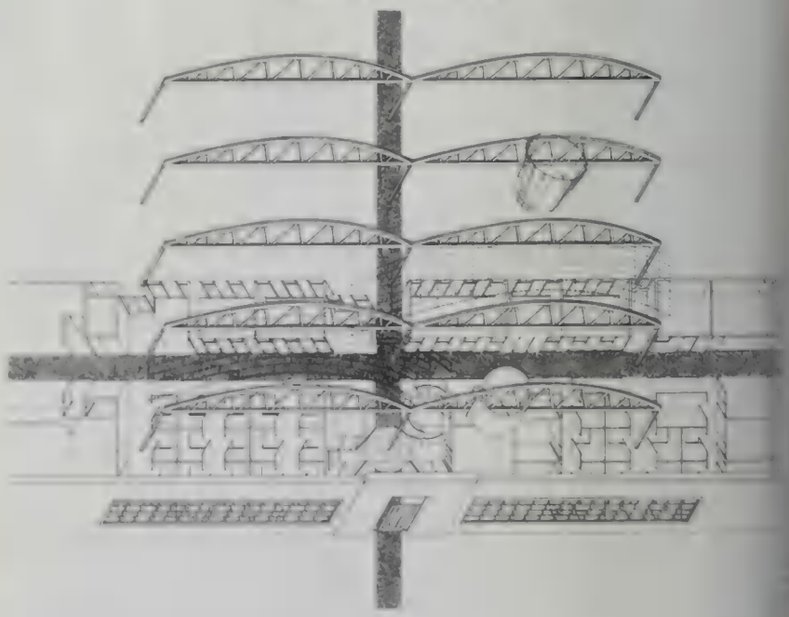






Valerio's axonometric drawing below shows the bowstring trusses and ceiling vaults, accentuated by his plywood "skins." The glass and birch partitions are sectioned into managerial offices and access work stations on one side (left) with views into the production facility on the other (above). Below left, a section of the plywood arch "comes to earth" and is anchored in a wall, while a segment of the truss becomes the conference room's primary focus at right, along with a plywood desk of Valerio's design.

Credits
Building U2
Skokie, Illinois
Owner: *U. S. Robotics*
Architect: *Valerio Associates—Joseph Valerio, principal-in-charge; David Jennerjahn, project architect; Michael Cygan and Randall Mattheis, project team*
Engineers: *WMA Consulting Engineers (mechanical/ electrical); Stearn/Joglekar, Ltd. (structural)*
Consultants: *Nancy Willert (interiors); Desks Inc. (furniture)*
General Contractor: *Turner Construction-SPD*





Fashion Statement

Jil Sander Paris
Paris, France
Gabellini Associates, Architect



Paul Warchol photos



Gabellini restored the crumbling limestone facade of the 1890 Paris landmark (above), bringing limestone inside as cladding for 30-foot-high load-bearing walls (opposite). New windows of clear water-white insulating glass maximize daylight admission into the north-facing street-side of the building, while preventing winter heat loss. Four incandescent flood lights add a theatrical touch to the double-height ground-floor display area.

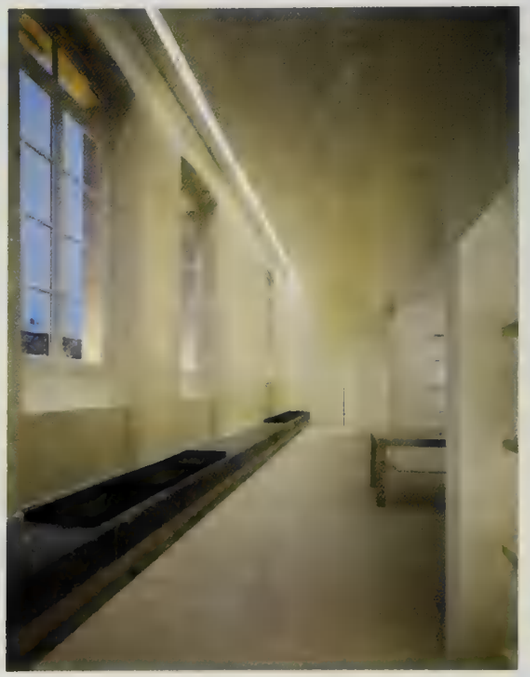
In the fashion world, designer Jil Sander is known for her striking silhouettes and refined fabrics. The current success of Sander's $200-million-a-year Hamburg-based clothing, perfume, and accessories empire is due as much to the timeliness as the timelessness of her vision, which she describes as "elegant," "classic," "subtle," and, above all, "strong." For Michael Gabellini, devising the architectural expression of this language for the company's first freestanding boutique outside Sander's native Germany was an opportunity to further his reputation for designing minimalist spaces enriched by sumptuous materials.

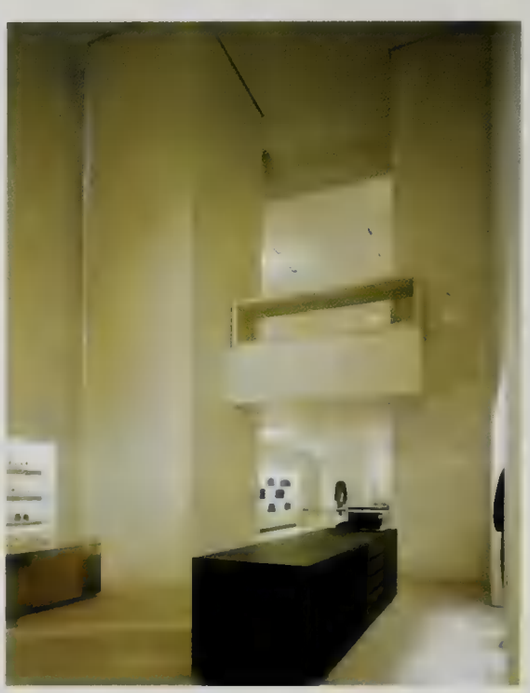
For her Paris debut, Sander chose an 1890 *hôtel particulier* (or private house) on the ultra-chic Avenue Montaigne. During the 1920s, it was converted into the couture house of Madelaine Vionnet, a fashion maverick credited with inventing the bias cut. Since then, the Beaux Arts structure has undergone a lackluster interior renovation and in 1990 the building was landmarked so it could be saved from impending demolition. Unable to alter the imposing limestone facade, Gabellini chose to pay it respect by repeating the material on the interior as cladding for 30-foot-high bearing walls, linking old and new. He removed portions of an existing second floor, creating a 1,800-square-foot double-height space facing the street, which features selections from the latest Jil Sander collection, and a more intimate 1,100-square-foot balcony for accessories. The 2,000-square-foot third floor is intended for evening wear and a 4,800-square-foot underground level is a showroom for informal modeling.

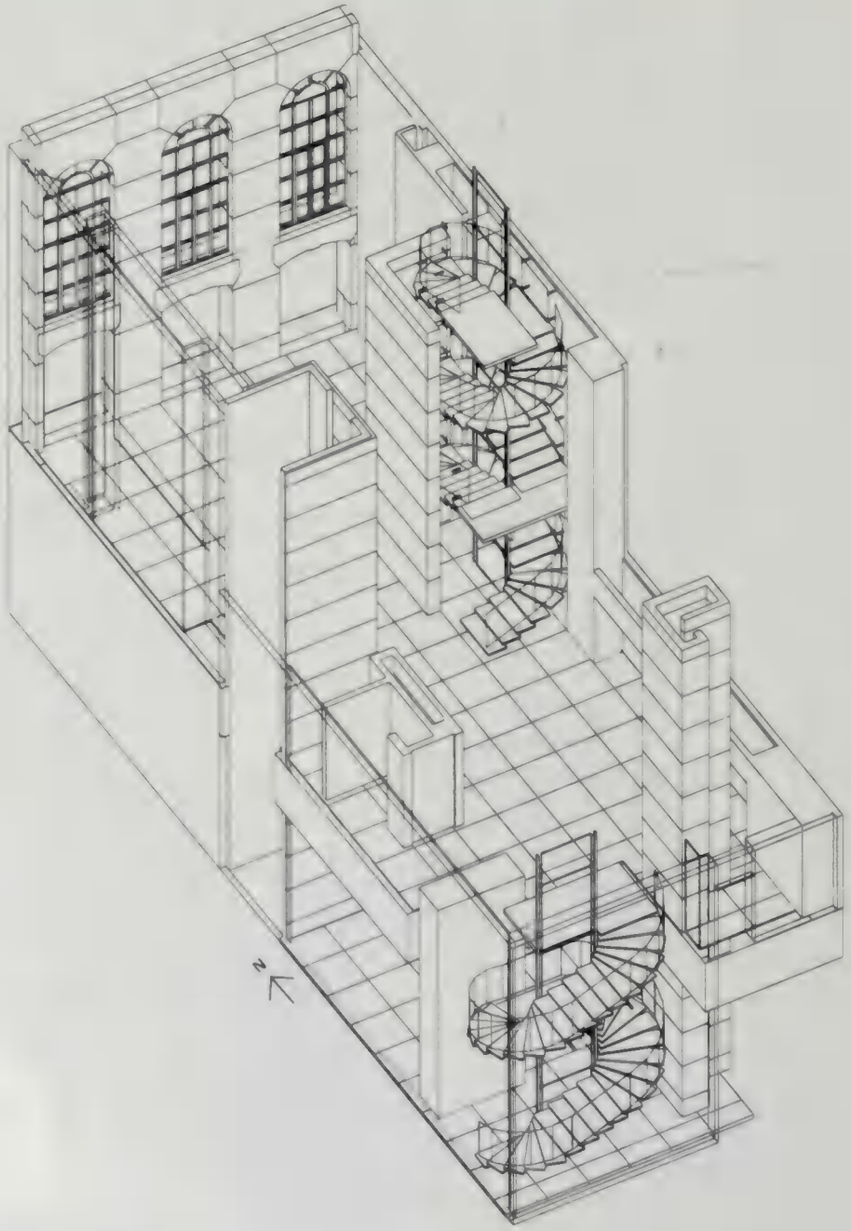
Gabellini organized clothing displays, cash/wrap counters, and seating areas around three vertical forms that dominate the otherwise open space: the grand public staircase that stitches together first, second, and third floors; an elevator; and the L-shaped planes that screen a back entrance on the ground floor and contain dressing rooms above and a cashier station below (axonometric page 92). Lining both sides of the space, these three elements create a forced perspective along the entry axis. Explains Gabellini: "The design appears simple, but there is an inherent complexity."

Gabellini's spatial play is the three-dimensional counterpart to Sander's tailoring, which she describes as "artistic cutting that looks like nothing when it's flat, but when it's worn it floats like an angel on the body." Similarly, the architect's deliberate contrast of rough and smooth materials—limestone shelves and floors, white marble "columns," black granite and concrete benches, black Macassar ebony wood display tables, nickel-silver clothing racks—also echoes Sander's unexpected pairing of fabrics. "I chose refined materials and detailed them in such a way that each material maintains its own identity," says the architect.

To intensify the drama of the space, Gabellini and consultant Johnson Schwinghammer devised theatrical lighting that also reveals the architect's interest in set-design. Clothing is hung in niches mysteriously illuminated by downlights recessed in coves, creating interior vitrines veiled in haze. A sensor mounted on the front facade monitors daylight and adjusts interior lighting according to five different preset levels, maintaining higher levels in the back of the shop to accentuate its 100-foot depth. The computer-controlled hvac system records temperature shifts and adjusts accordingly. Lighting can be varied according to the needs of a particular collection, echoing the plan's overall flexibility. Gabellini likens the look of the shop to a Roman aqueduct—"monumental and practical"—but Sander's assessment is, as expected, more fashion-minded: "It's a super classic." *Karen D. Stein*





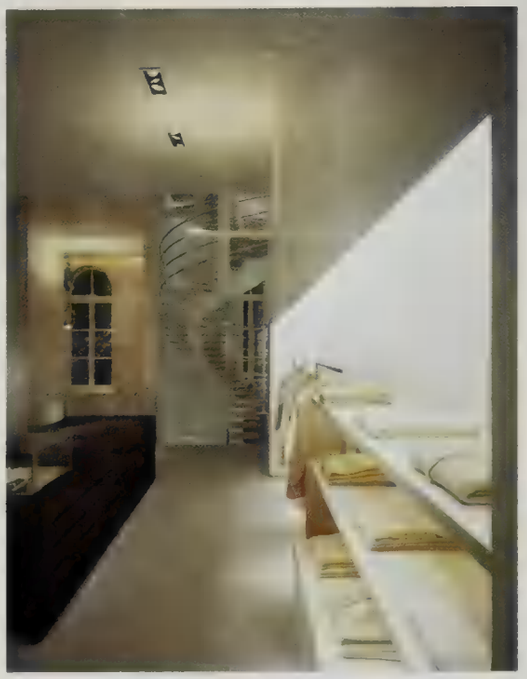


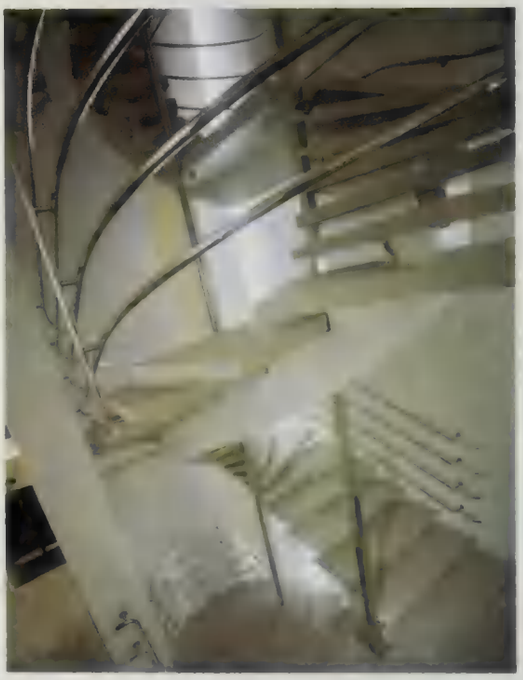
"Clean elegance" is how Michael Gabellini describes Jil Sander's clothing. The same can be said of Gabellini's architecture. After gutting the interior of the 19th-century structure, Gabellini organized display and selling areas around three white marble-clad vertical forms positioned on alternate sides of the 100-foot-long space (axonometric below left).

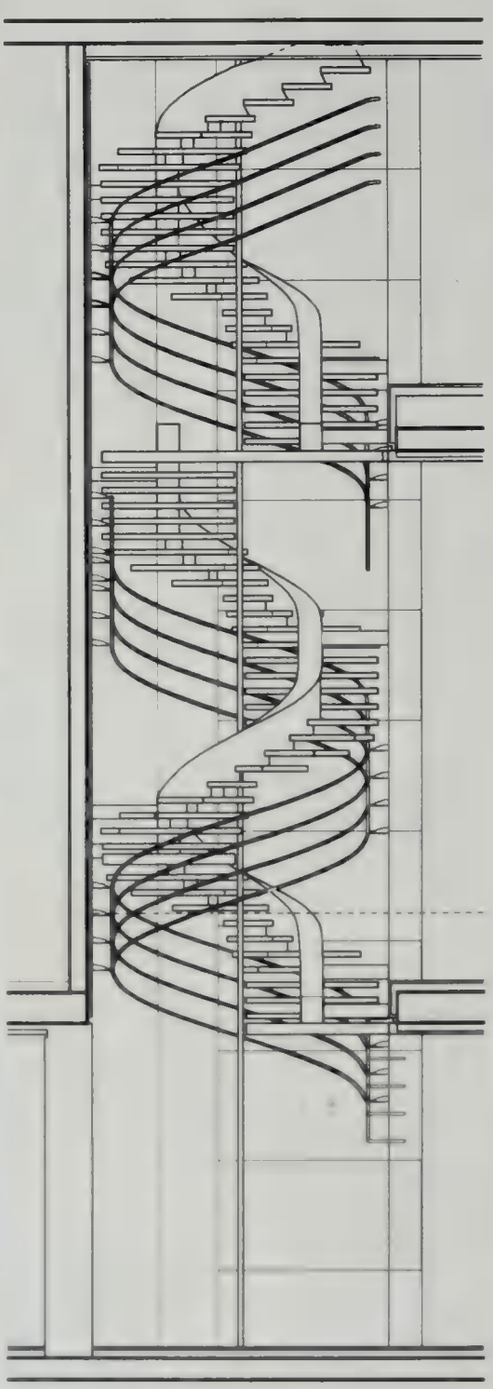
Gabellini removed 40 percent of the existing second floor to create a dramatic interior courtyard facing the street. An acid-etched concrete balcony overlooks the black Macassar ebony wood display tables of the ground-floor collection area (near left).

Ebony display trays (far left) and clothing niches (opposite) are lit from above by a mix of fluorescent and halogen fixtures concealed by soffits. Flush-mounted incandescent ceiling fixtures with dichroic filters provide additional ambient light. All electric light is controlled by a dimming system that monitors the light on the front facade and adjusts interior lighting accordingly. "The back of the boutique is lit at higher levels than the front to enhance the sense of drama as you move through the space," explains Gabellini.







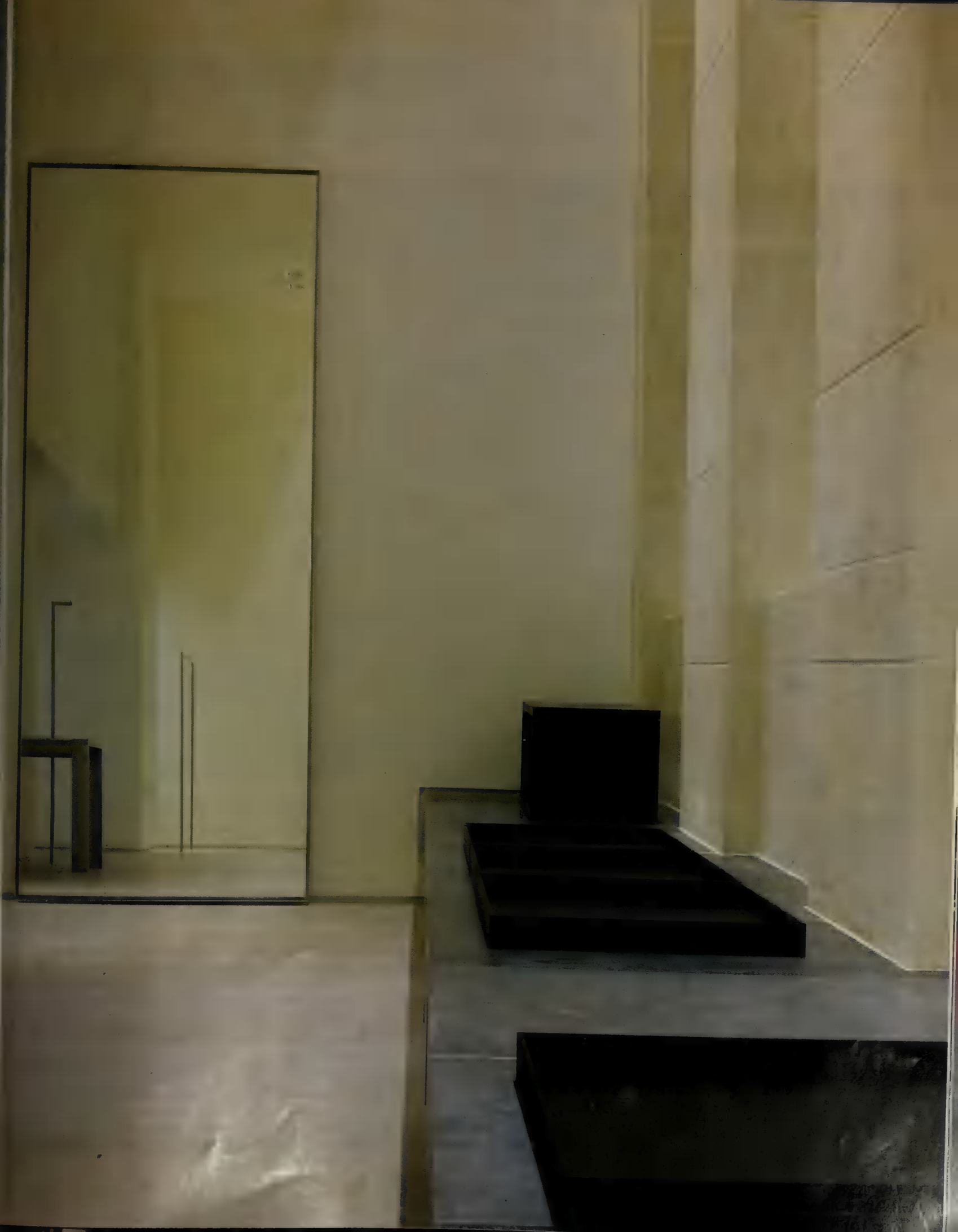


Up Close

Staircase. The 40-foot-high main staircase is a structural tour de force partially screened and reflected by a wall of Venetian optical water-white glass framed in nickel silver (photos left). To support seemingly floating treads of limestone, which span an 8-foot 3-inch by 13-foot opening, Michael Gabellini designed a curved central stringer of forged steel that is finished with a high-gloss white lacquer. Although the stringer is supported by the stair landings, additional bracing is provided by steel beams connected to the wall (section left). The sinuous curve of the staircase is repeated in the four bands of a nickel-silver railing.

Credits

Jil Sander Paris
Paris, France
Owner: *Jil Sander AG*
Architect: *Gabellini Associates—Michael Gabellini, principal-in-charge; Andrew Pollock, project architect; Oliver Wong, project coordinator; Justin Russli, Mimi Kueh, Dale Turner, Kuttu Narayan, Vrinda Khana, Wendy Ward, project team*
Engineers: *Betiba (mechanical/electrical); Fred Storkson (structural)*
Consultants: *Johnson Schwinghammer (lighting); Swenson Stone Consultants (stone)*
General Contractor: *Heper Coordination Engineer*



Royal Treatment

■ *Evan Dion photos this page and opposite*





The theater occupies a small site just 155 feet wide and 185 feet deep.

When Ed and David Mirvish started planning the Princess of Wales Theatre, the elder half of the father-son team of producers thought of the gold-and-red colors, the plush velvet seats, and the proscenium arch of landmarks like the nearby Royal Alexandra Theatre, which they also own. While respecting the wishes of his father, David Mirvish hired the up-and-coming firm of Yabu Pushelberg to design the interiors and encouraged its partners to go beyond the normal conventions of theater design. Along with Lett/Smith Architects, who did the building's architecture, and artist Frank Stella, who created a series of murals and plaster reliefs, the interior designers breathed new life into a tradition-laden building type.

A 2,000-seat theater shoehorned onto a 155-by-185-foot site with parking for 226 cars below grade, the Princess of Wales Theatre is intended to house big musical productions such as its current resident, *Miss Saigon*. One of the challenges in designing a big theater for a tight site was creating a dynamic procession of spaces from main lobby to auditorium. In the old days, one large lobby usually fed directly into the rear of the seating areas. But with limited

For The Princess of Wales Theatre in Toronto, Yabu Pushelberg gave old show-business conventions some new twists.

The Princess of Wales Theatre
Toronto, Canada
Lett/Smith Architects
Yabu Pushelberg,
Interior Designer

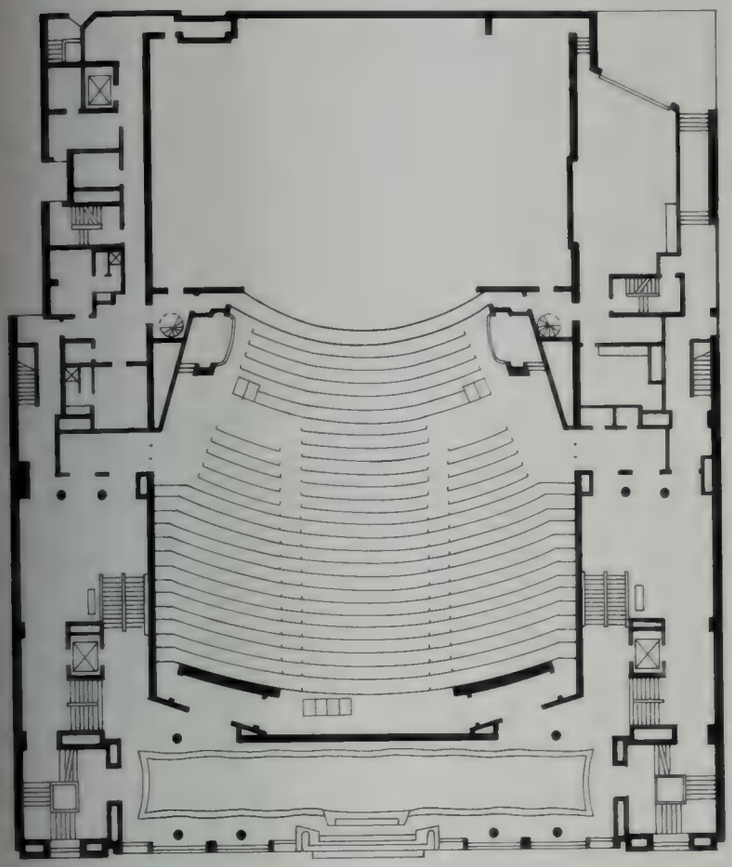


space available here, the architects and designers had to tuck a series of lobbies, intermission foyers, and a lounge around and below the auditorium.

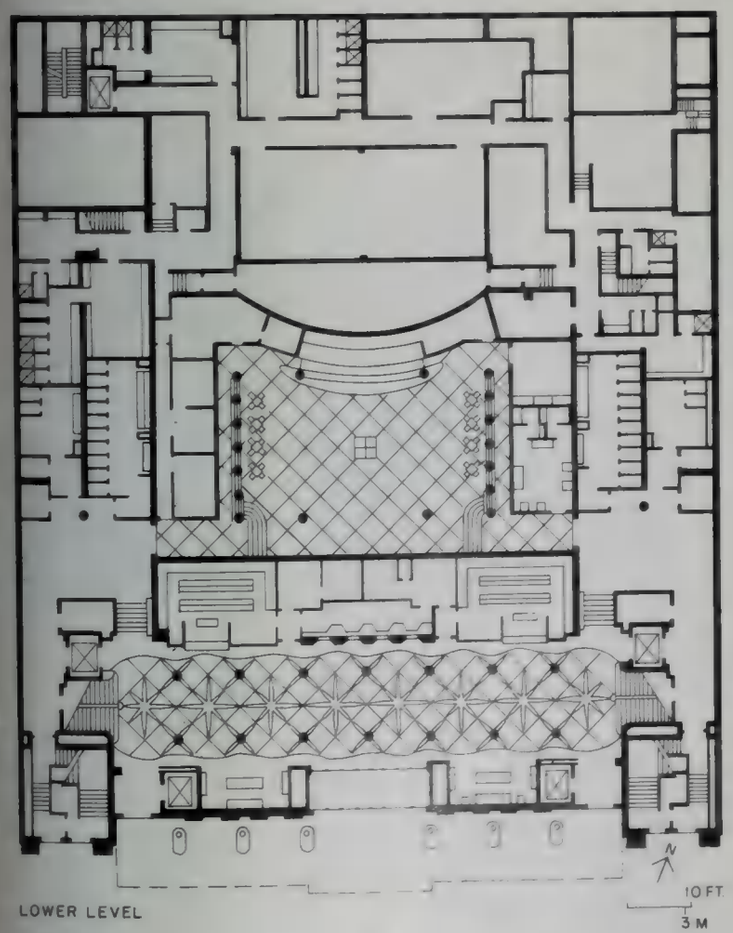
Ultimately, the designers choreographed an intriguing dance that leads theater patrons from the long narrow lobbies on each floor to smaller areas on either side of the auditorium and finally to their seats. "We wanted to create a sense of anticipation and delight," says George Yabu, the partner-in-charge. "We wanted the spaces to unravel as people move to their seats." To achieve that effect, Yabu Pushelberg used color, light, and texture to enhance the illusion of space. The overall plan was to lead patrons from bright areas to darker ones, from rooms with reflective surfaces to ones with light-absorbent materials. Starting with the main lobby on the ground floor where light from the marquee outside supplements indoor sources, visitors move to the individual floor lobbies where polished woods and metallic particles embedded in plastered walls make the spaces sparkle. In the side anterooms leading into the auditorium and inside the auditorium itself, darker colors and matte surfaces predominate. Another part of the designers' lighting strategy was "to make people look good," explains Yabu. Since light from one direction leaves shadows on faces, the designers used sources in a variety of locations to soften both the architectural surfaces and the people inside the architecture. Halogen lamps at the crossings of the vaults and incandescent downlights in flat ceilings are supplemented by uplights in the floors, wall sconces, and a variety of custom-designed fixtures for the bar area.

Like the main lobby, the individual lobbies on each floor reinterpret the gold and red palette of old theaters. But here the gold is found on wavy vaulted ceilings and columns fattened beyond their structural requirements, while red carpets prepare visitors for the explosion of red seats and curtains in the auditorium. "It's a night-time venue, so we got gutsy with our color scheme," says Yabu. Divided into an orchestra level and two horseshoe-shaped balconies, the auditorium keeps all seats within 92 feet of the stage. Knowing when to yield the stage, Yabu let Frank Stella's murals around the proscenium arch and the ring of the dome be the star performer in the theater itself. *Clifford A. Pearson*





UPPER LEVEL



LOWER LEVEL





© Evan Dion

Because the theater occupies such a small site, architect Lett/Smith and interior designer Yabu Pushelberg had to break public space into a variety of small lobbies, foyers, and rooms. A lounge (top) is tucked underneath the orchestra level of the theater and includes one of the building's many Frank Stella murals. The vaulted ceilings and mosaic floors of the main lobby on the ground floor (previous pages) "create a strong linear quality" that helps direct people to staircases at the east and west ends. Instead of trying to minimize the impact of structural columns on the main lobby, Yabu says he decided to "give them their own identity" and use bulging profiles to make them less serious and more "friendly." To create a sense of procession throughout the theater, the designers played with proportion, making columns more slender, varying the lines of vaulting, and lowering ceiling heights as visitors climb floors. Yabu Pushelberg designed special light fixtures for newel posts on the stairs leading from the ground floor to the second-floor lobby (opposite), which features Honduran mahogany millwork, lighted bar shelves, and light fixtures by Yabu Pushelberg.



Built specifically for the show Miss Saigon, *the Princess of Wales Theatre was designed for high-tech theater productions that require sophisticated facilities. The theater has one of the largest stages in North America, with a proscenium height of 36 feet, proscenium opening of 49 feet, and stage depth of 60 feet. The theater's fly tower is 120 feet high and has a Stella mural on its exterior wall facing Pearl Street. The horseshoe-shaped balconies (right) help keep all 2,000 seats within 92 feet of the stage. While box suites have disappeared in many modern theaters, the architects here made them an important part of the auditorium, using them as regular*

Credits
The Princess of Wales Theatre
Toronto, Canada
Owners: *Edward and David Mirvish*
Architect: *Lett/Smith Architects*
Interior Designer: *Yabu Pushelberg—George Yabu, Glenn Pushelberg, partners-in-charge*
Engineers: *Peter Sheffield & Associates (structural); C. Rossey Engineering (mechanical/electrical)*
Consultants: *Aerocoustics Engineer Limited*
Construction Manager: *Ellis-Don Contracting*

Up Close

Artistic collaboration. While some owners commission a famous artist to do a mural or sculpture merely to grace the lobby of one of their buildings, David Mirvish saw art as an intrinsic part of his Princess of Wales Theatre. So when he hired Lett/Smith Architects to design the building, he also brought Frank Stella into the project. Having owned an art gallery for many years, Mirvish was good friends with Stella and knew the artist was interested in creating entire environments and not just individual pieces. As the project developed, architect, interior designer, and artist worked closely together. In the end, Stella created 10,000 square feet of original artwork, including murals for floor lobbies, the lounge, the proscenium arch, and the ring around the theater's dome. In addition, he made sculpted plaster reliefs that run along the two balcony fronts and cast-iron reliefs at the ends of each row of seats in the auditorium. "We could have taken an art-gallery approach to Frank's work and just made a neutral background for it," says interior designer George Yabu. "But Frank told us to let loose and do our own design." Since Stella's work has never lacked for assertiveness, the artist wasn't afraid of being upstaged. Looking back at the collaboration, Yabu says, "I think we softened Frank's work a little bit—in terms of color and texture." Conversely, Stella's swirling "smoke-ring" and "whale" forms inspired Yabu's fat columns in the ground-floor lobby.





First Movement



A designer's first project is an office and workshop space built of forms rather than walls and doors.

B. B. Dakota
Laguna Beach, California
Jane Sachs, Designer



Nothing compares to the energy and devotion to detail designers bring to their first project after architecture school. Jane Sachs's office and workshop space for B. B. Dakota, a clothing design and import company, is bound to be a memorable one for her. The project had an ultra-low budget: $150,000 including a $40,000 seismic upgrade, labor, materials, artwork, furniture, and fees. Construction was completed on a whirlwind schedule just three months after Sachs and her collaborator Belen Moneo started the design.

The interior occupies a single-story masonry building that once housed the Laguna Beach post office. Inside, Sachs floated a number of freestanding structures which divide the space while acting as a conference room, storage walls, and a giant cube-shaped phone booth for a pacing salesperson, and leaves open space for work stations. The only interior doors in the building lead to the restrooms.

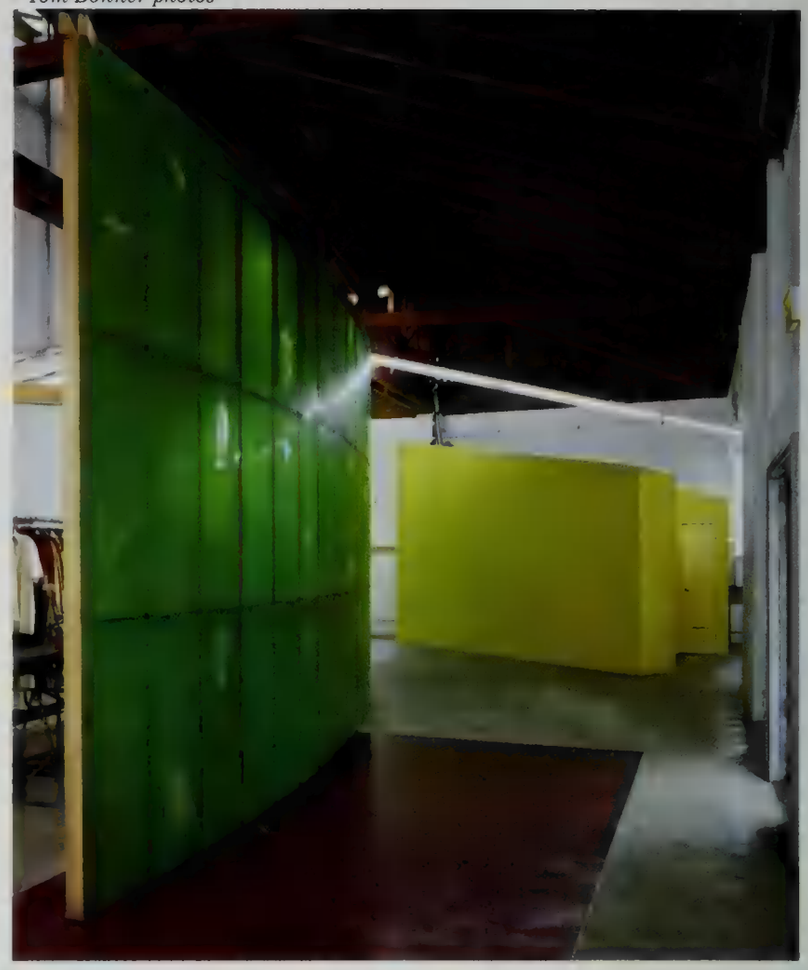
"What has influenced my work is the idea of developing forms to pull people through a space, rather than using doors and walls to separate them," says Sachs, attributing her design approach to previous work as an artist and potter. "The spaces in between the forms create a sense of movement. I constantly try to put myself inside the space, which is why I design from models. I avoid looking at architecture as strictly a plan view alone."

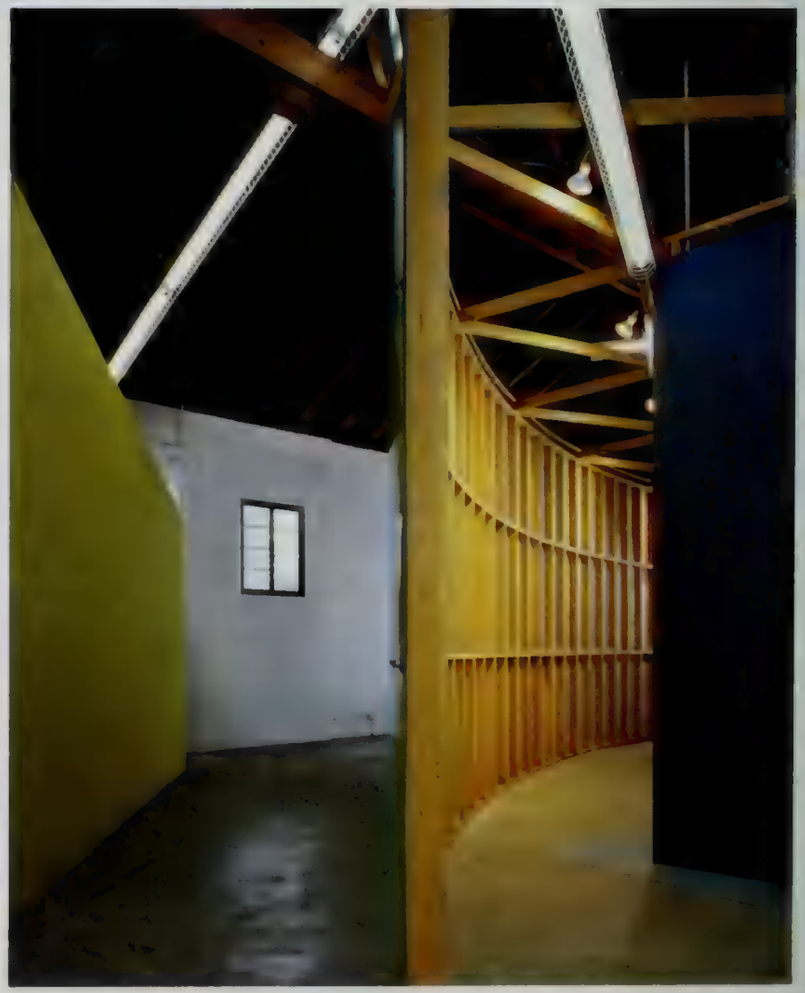
One of the major forms defining the space is the conference room, situated just inside the building's main entry (photos right). Sachs seized upon the major component of the building's structural system—the bowstring truss—to define the shape of the room, including diagonal "web" members spanning the tops of the walls. Sachs commissioned artist Joshua Simons to create scrafitto drawings of objects related to the garment manufacturing industry to cover one wall (top photo, right). The drawings are scratched into translucent green acrylic paint applied to the inside of one set of 1/8-inch-thick plastic panels, and protected by a second layer of panels upon installation. The panels were produced in New York and shipped to the site, where they were attached to the curving wooden wall using exposed drywall screws, in keeping with the utilitarian vocabulary of exposed hardware found throughout the project.

Other objects designed by Sachs that dominate the space include skylight-boxes, work stations where prototype clothing is produced, and a storage wall (opposite). The skylight-boxes hang from the ceiling, enclosing existing skylights with metal studs faced with sanded acrylic sheet. These turn hot, glaring sunshine into soft, diffused light. The storage wall, constructed of birch plywood, winds its way through the space, and is broken at intervals to permit circulation. Electric light is provided by fluorescent strip fixtures, each suspended from the ceiling structure at a slightly different angle to the floor, creating an effect that Sachs intends to be analogous to stitching in fabric.

Color selection was also crucial. "Color is often not dealt with in architecture, and I wanted to deal with it. My client's first reaction [to choosing colors] was, 'gray is neutral and I can live with it forever.' I told her colors were the easiest things to change and promised I would re-spec them if she didn't like them." Existing exterior walls were painted white, while forms in the space were painted yellow-green and a muted dark blue. Neutral-colored floor tile is interrupted by blocks of dark red tile. Sachs avoided having every object in the space painted a different color "to keep the space from looking like a kids' room." *Charles D. Linn*

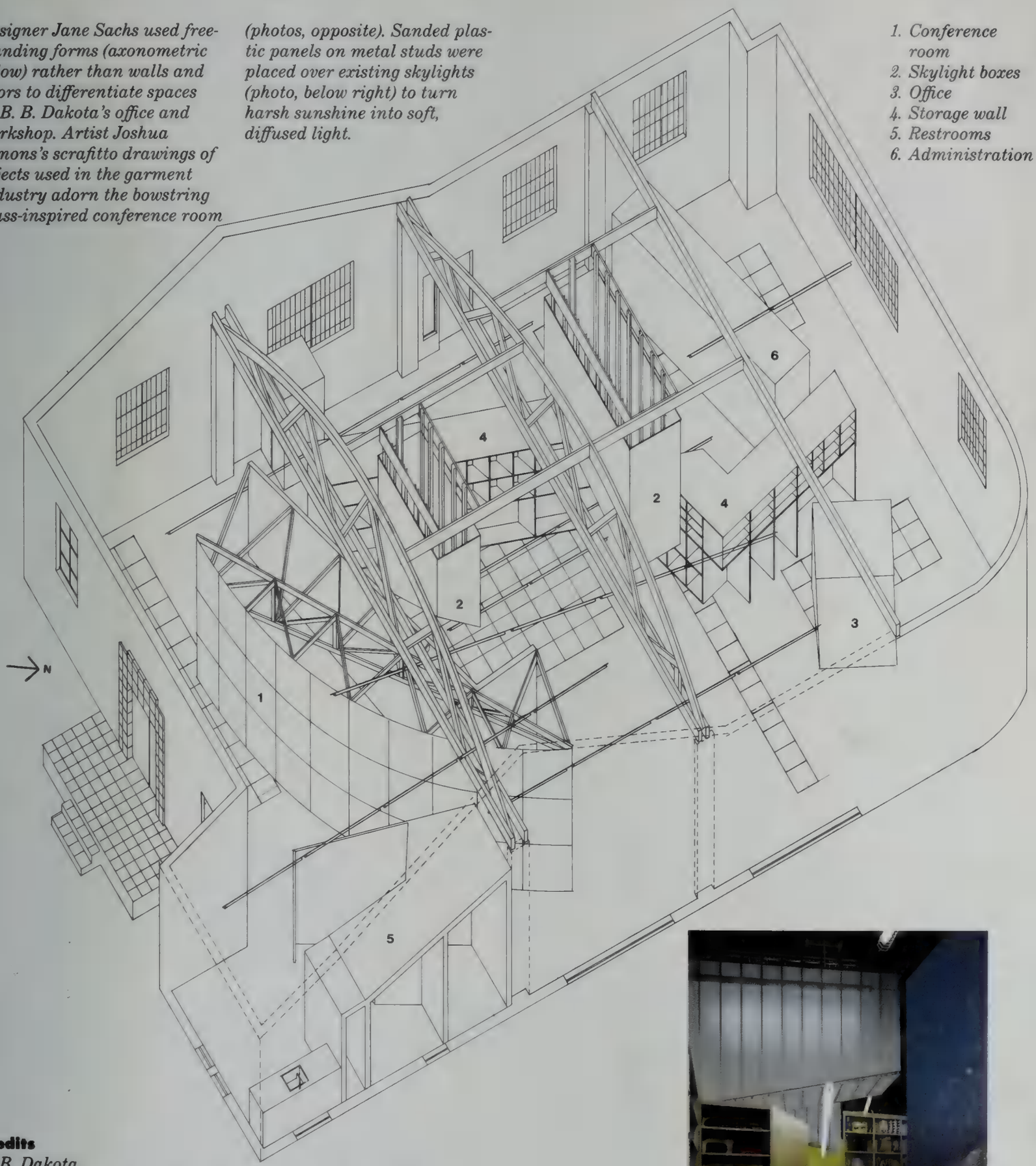
© *Tom Bonner photos*





Designer Jane Sachs used free-standing forms (axonometric below) rather than walls and doors to differentiate spaces in B. B. Dakota's office and workshop. Artist Joshua Simons's scrafitto drawings of objects used in the garment industry adorn the bowstring truss-inspired conference room (photos, opposite). Sanded plastic panels on metal studs were placed over existing skylights (photo, below right) to turn harsh sunshine into soft, diffused light.

1. *Conference room*
2. *Skylight boxes*
3. *Office*
4. *Storage wall*
5. *Restrooms*
6. *Administration*



Credits
B. B. Dakota
Laguna Beach, California
Owner: *Gloria Brandes*
Designer: *Jane Sachs; Belen Moneo, associate designer*
Architect: *Jihyon Kim*
Engineers: *Robert Lawson*
Artist: *Joshua Simons*
Consultants: *Scott Devere, Paul Rybezyaski*
General Contractor: *First Team Contractors, Dan Chasteen*

Imagined Spaces

The day-to-day design of buildings requires solving a series of specific problems defined by a program. There's often not enough time to study the essence of architecture: enclosure, surface, light. Lauretta Vinciarelli has made this search her career. Her medium is watercolor paintings. Her fluid brushstrokes convey a dreamy quality, but it is her skilled drafting with ink pens that gives each image its intensity and photographic realism. Though Vinciarelli is an architect, the peculiar distinction between artist and architect is far less accepted in her native Italy, explaining, perhaps, her ability to successfully straddle the two fields in her adopted home of New York City. Since 1978, Vinciarelli has been an adjunct professor at Columbia University's Graduate School of Architecture, where she teaches design.

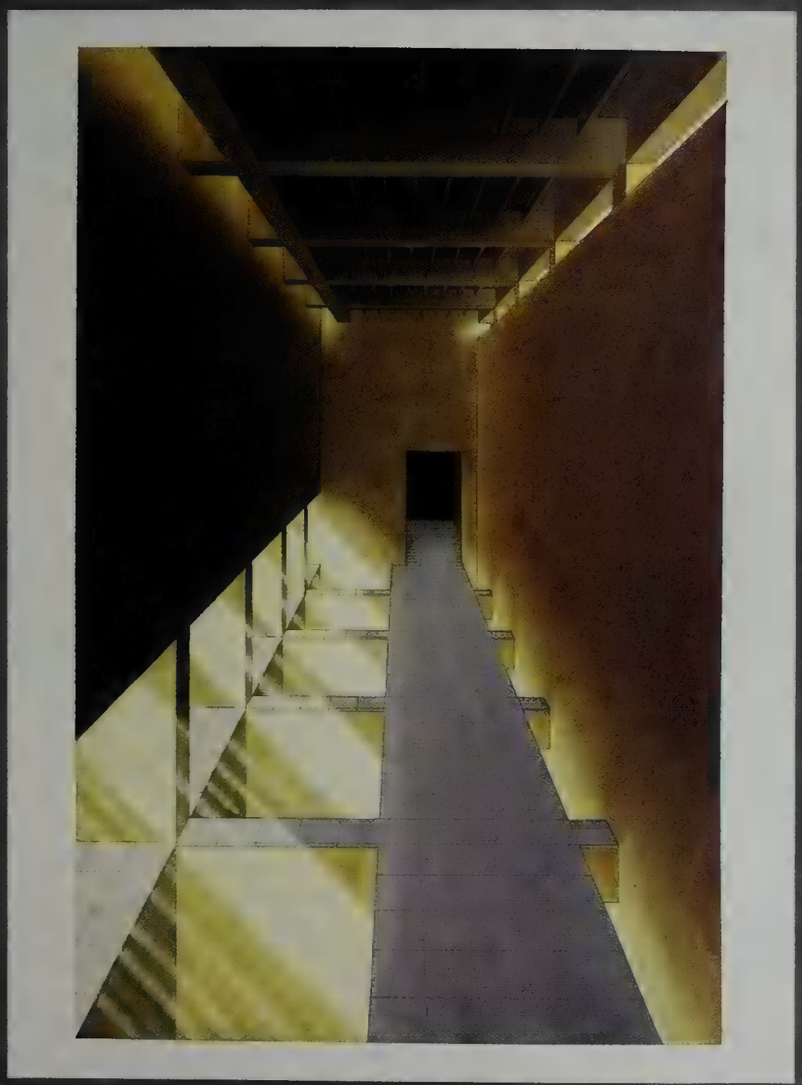
Vinciarelli does not represent real places. "My work has its origin in spaces I have abandoned—the mood of Rome [where she grew up] or the landscape of Texas [where she has traveled], which has an un-European vastness and freedom . . . . The paintings are of spaces I know that look nothing like what I paint," she explains. Unlike an architect, Vinciarelli's vision is not designed to be built. "My subject matter is architecture, but my paintings are not supported by a [functional] program." Instead, she views her work as philosophical meditations—"an autobiography."

Personal vision aside, representational techniques and a sensitivity to space, light, and surface are what distinguish Vinciarelli's work. Perspective provides, in her words, "a system of rules" and "the ability to create a narrative" series of two paintings or more. Walls, windows, and doors, the seeming subject matter, are lit by invisible light sources and reflected in limpid pools of water, which animate stage-set-like compositions and convey a mysterious sense of space beyond the borders of 22-inch by 30-inch paper. Such transcendence is what Vinciarelli seeks in her work, maintaining, "Our feelings and aspirations have a spatial counterpart." *Karen D. Stein*



Vinciarelli's 1992 series of three watercolors (above and opposite) is entitled Black Room.







Two watercolors called Red Water *(above) are from 1892, while* Window *(opposite) was painted in 1988.*

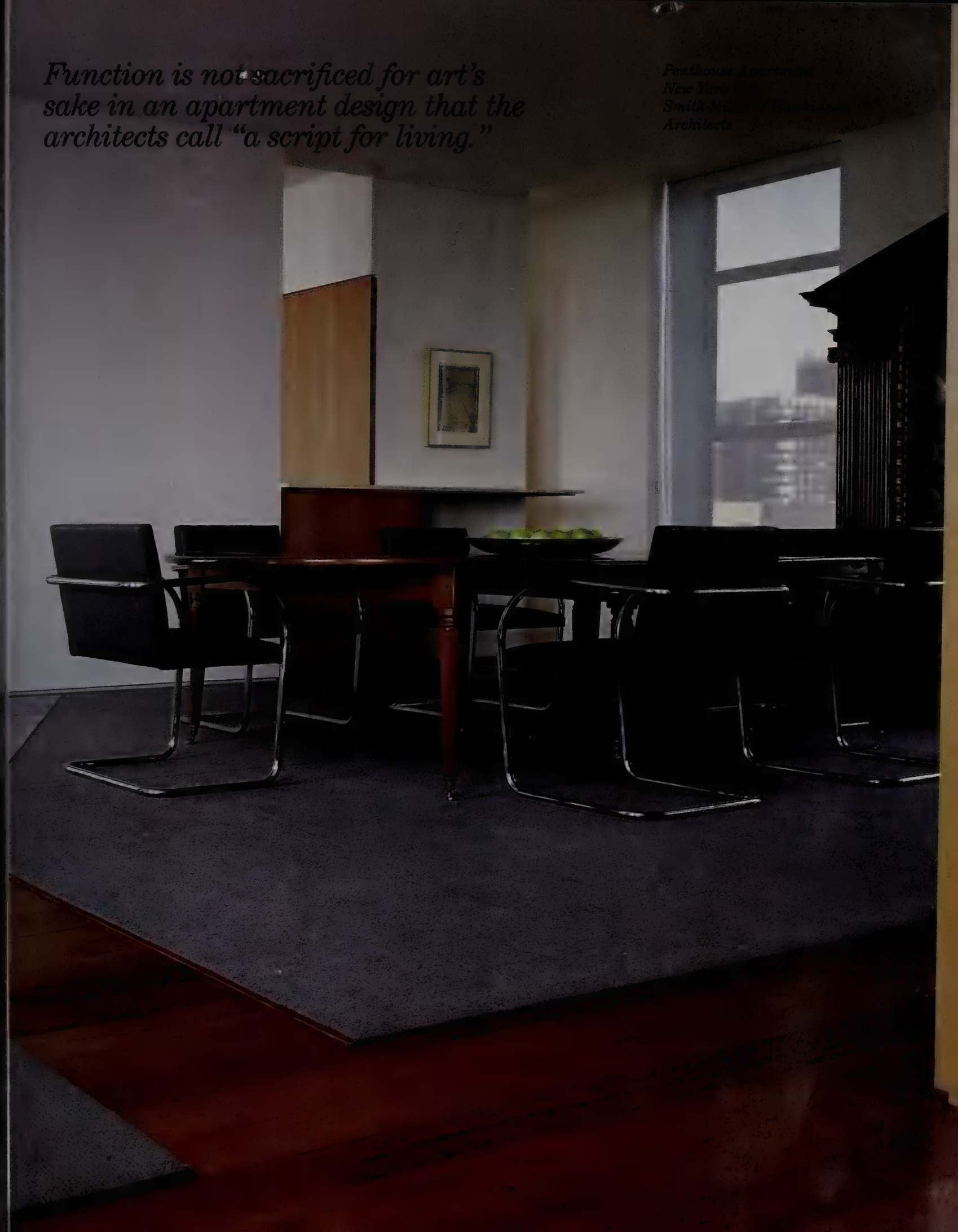


Story of Their Lives



Function is not sacrificed for art's sake in an apartment design that the architects call "a script for living."

Penthouse Apartment
New York
Smith-Miller + Hawkinson
Architects





The previous occupant of this apartment on the top floor of a 1930s building on New York City's East End Avenue cut out a doorway to join what was once two units, leaving a railroad-flat-like arrangement of smallish rooms. The current owners found this inappropriate to an 18th-floor "penthouse" that boasts wrap-around terraces with sweeping Manhattan views. "The space cried out to be uncluttered and open; to have high windows and lots of natural light," one of the owners recalls. Eager to shed some of the "traditional baggage" of a more formal apartment downstairs, this family of modern-art lovers turned to Henry Smith-Miller and Laurie Hawkinson for nothing more specific, or less elusive, than "a happy home for ourselves and our pictures."

Accordingly, Smith-Miller and Hawkinson's deceptively simple plan removed virtually all interior partitions and made a seemingly negligible five-foot-wide north terrace into interior space. The result is a 4,000-square-foot box that is 125 feet long and bulges from 30 feet to 56 feet in the newly enlarged wing, where the architects carved two bedrooms out of a former maid's quarters and hall.

Spots and floods recessed in a series of soffits that drop 3 feet 6 inches below 11-foot-high ceilings repeat the daytime effect of daylight as a halo around the apartment, while subtly lighting works by Fernand Léger, Balthus, Jasper Johns, Alberto Giacometti, Richard Diebenkorn, and Sean Scully among others. The soffits also outline the foyer, living room, dining room, and library without interrupting the single continuous space (axonometric page 116). "The ceiling's surface is the idealized plan of the project," explains Hawkinson of the overall effect of discrete yet interconnected rooms.

The patterns and intricate construction of three rugs designed by the architects echo the double theme of repose and flow: a lush cut-pile wool defines seating areas, and tightly tufted loop wool indicates circulation routes in between (previous pages). Indented flat lines of burgundy-colored wool—the architects call them "spirit breaks" in reference to Navajo rug-making traditions—visually connect the three rugs, extending the eye and sense of space from living room to dining room and beyond.

Smith-Miller attributes his and Hawkinson's interest in interconnecting spaces in part to their study of French architect and furniture designer Pierre Chareau. Built-ins are in fact Chareau-like, reinforcing the spatial play between densely layered and elongated surfaces: a pearwood bookcase in the library is at once furniture and thickened wall, and a pivoting plane is both moving wall and giant cabinet door (page 116). As Hawkinson explains of their approach: "Architecture is both functional and artful and it comes to life as it is used. This is a script for living." *Karen D. Stein*

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The architects located the main entrance (bottom) at the west end to exploit the dramatic 125-foot-long sequence of spaces along the south wall that leads to the library (top).



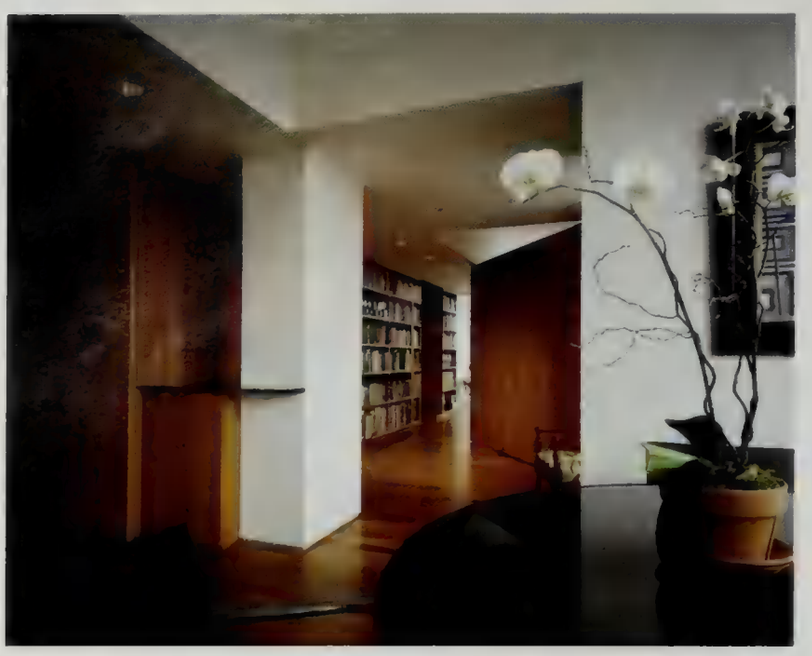


The architects gutted the interior, retaining an existing flue and two public and two service elevators, reminders that the apartment was once two units. They created a series of interconnected soffits organized around the existing fireplace (below and opposite) and a new kitchen (far left). Both organizing elements were treated as giant pieces of furniture: a green onyx mantle extends as cabinet countertop between living room and dining room, and delicately grained pearwood—an artful backdrop to a Balthus drawing—wraps the kitchen like "a giant Chinese box" according to Smith-Miller.



Cherry floors contrast with three custom-designed rugs, which combine some 20 wool and silk colors. Changes in texture and construction echo different uses: a tightly tufted weave along the apartment's perimeter defines circulation and lush cut-piles mark seating areas.







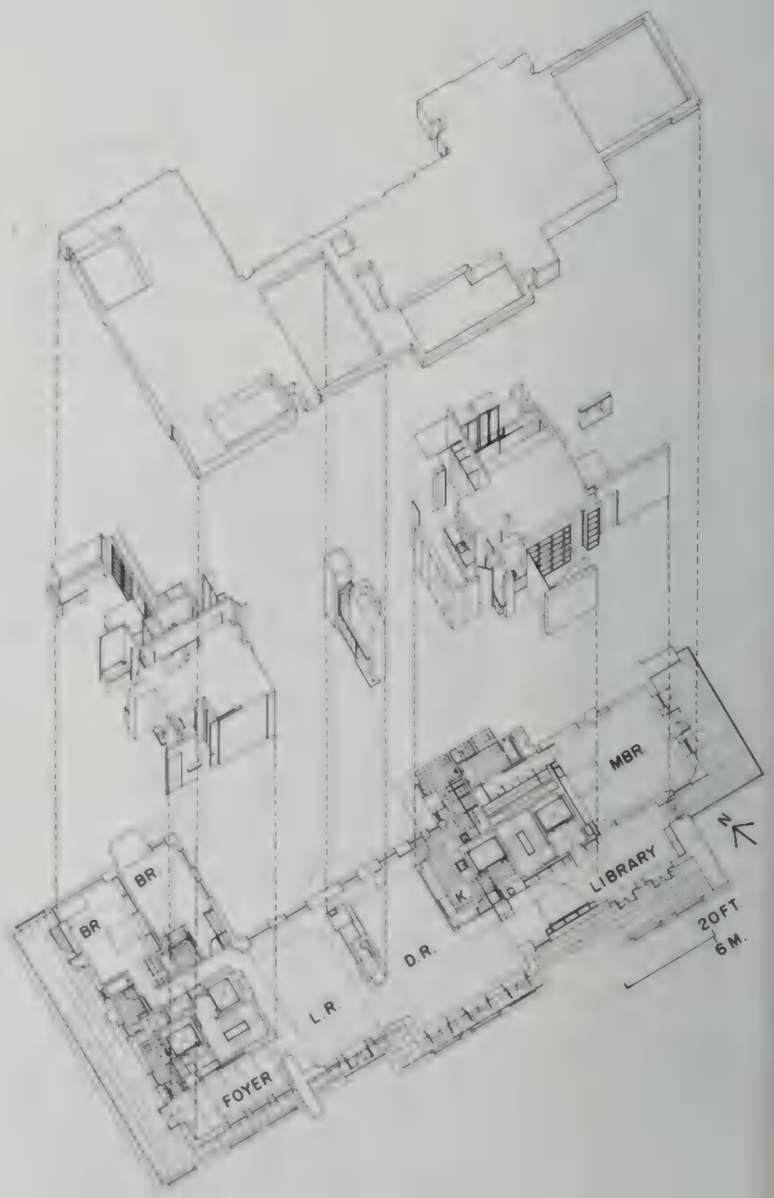
Throughout the apartment, soffits hide PVC-coated fiberglass sunshades and opaque blackout shades, while painted metal hvac grilles are a baseline beneath 23 windows and 12 doors, all with new UV-laminated double-pane glass to control heat gain and protect art work from the sun.

Credits

Penthouse Apartment
New York, New York
Architect: *Smith-Miller+*
[illegible]ts—Henry
[illegible]ls-in-
[illegible]es,
[illegible] Goya,
Elizabeth Alford, Anne Chen, John Conaty, Yolande Daniels, James Gettinger, Belen Moneo, Charles Renfro, project team
Engineers: *Severud Associates (structural)—Ed Messina, project engineer; Carstel Corporation (mechanical/electrical/plumbing)*
Consultants: *Jean Sundin, John Wood, and Claude Engle (lighting); Solveig Hill (interiors, fabrics); Associated Consultants—Paul Buccelatto (waterproofing); Mary Bright (curtains)*
General Contractor: *Clark Construction—Malcolm Nagle and Jon Adir, project managers*

Up Close

Materials. "It's like dental surgery," says Laurie Hawkinson of the intricate demands of renovating a Manhattan apartment, particularly one with as much meticulous built-in furniture as this one (axonometric below). Hawkinson and partner Henry Smith-Miller clad the kitchen volume in pearwood, chosen for its color and delicate grain, giving it the appearance of a giant box set between the more public living and dining rooms and the master bedroom suite. When open, the kitchen door becomes part of a pearwood bookcase that emerges from the library (top left). Similarly, a pivoting door can be positioned to hide books (bottom left). Designer Sloveig Hill assisted the architects in selecting some 20 paint colors to subtly intensify the play of daylight on walls and soffits. Crisply delineated planes of pearwood reappear in the master bedroom as shelves and an adjustable bedboard (opposite).

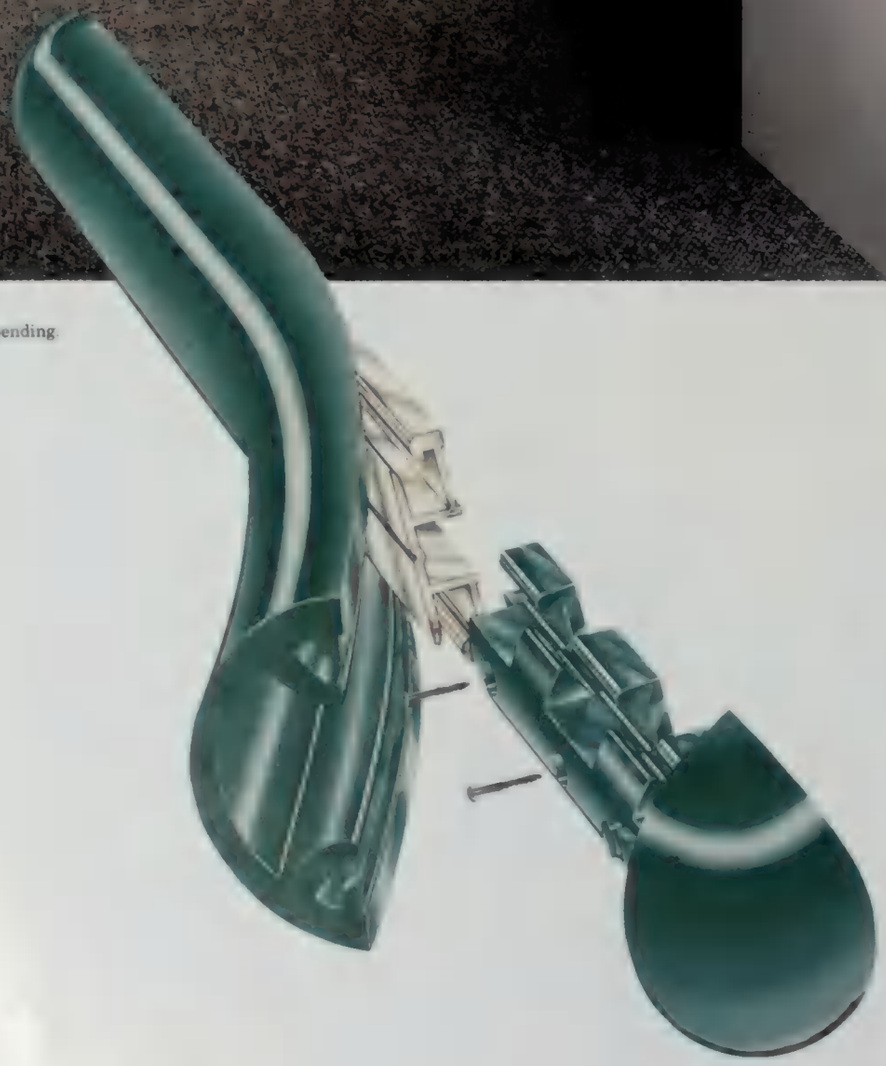






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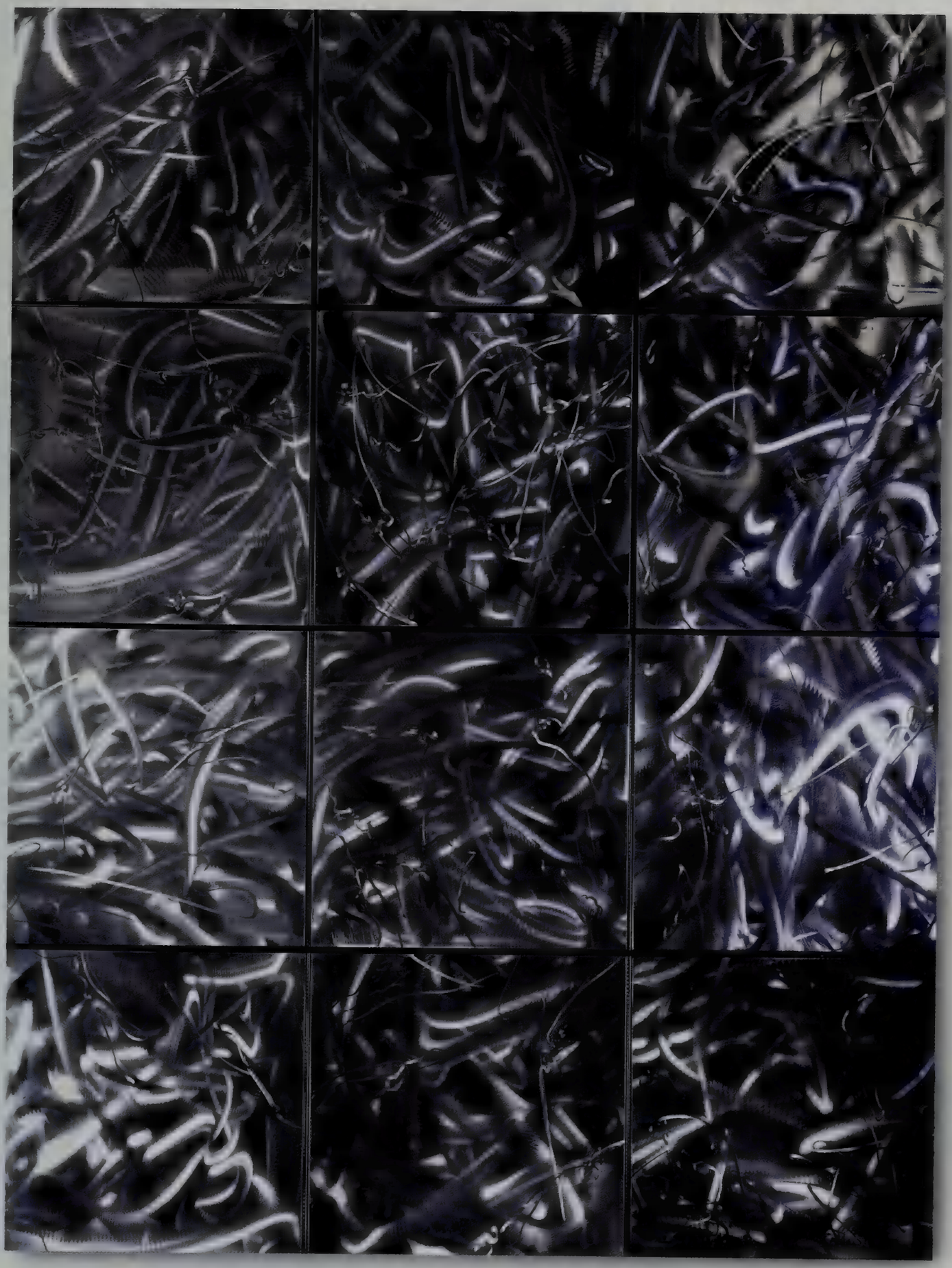
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Marlite

AutoSketch
Computers/AutoSketch

Continued from page 49

comes with 19 fonts but doesn't pick up fonts from your Windows system—it uses standard AutoCAD fonts instead.

The DXF translator is extremely stable, which figures, because DXF is an Autodesk standard. It is easily good enough for AutoSketch to be used by part-time drafters in offices that mainly work with AutoCAD (for 2-D-only work, of course). The interface is simple enough for inexperienced drafters to pick up quickly. Translation from AutoCAD back to AutoSketch is not as sure, because AutoCAD includes many items that AutoSketch does not—more line types, for instance. *Circle number* **307**

AutoSketch for Windows Summary

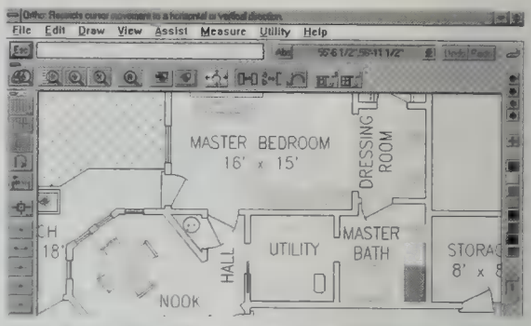
Equipment required: DOS computer capable of running Windows in enhanced mode (80386SX or higher CPU). 4 MB of disk space, minimum, and 2 MB of RAM (4 MB strongly recommended). Math coprocessor strongly recommended (it is built in to the 486 CPU). VGA or better monitor, mouse.

Vendor: Autodesk Retail Products, 11911 North Creek Parkway South, Bothell, Wash. 98011, 800/228-3601, fax 206/483-6969. $299.

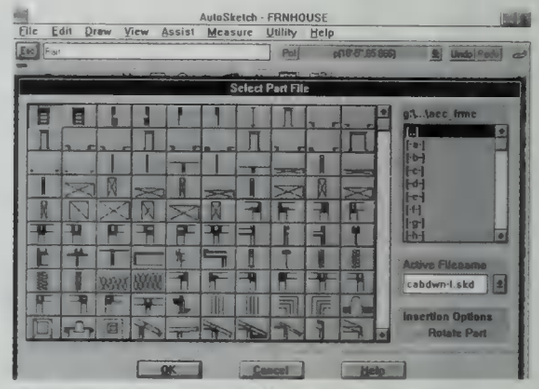
Manuals: A simple 38-page quick-start, a 20-pager displaying some of the symbols, a 382-page reference, and 202-page tutorial—all paperbacks and all first-rate. About half the tutorial lessons are directly related to architecture.

Ease-of-use: Comfortable on a fast machine. The cursor system is awesome; the use of each icon representing a tool is displayed under the cursor itself, and in a reference line at the top of the screen. When you zoom in on a section of the drawing, you can activate an "aerial" overall view. There are all sorts of other "training wheels" as well, to help you align to midpoints, snap to perpendiculars, and so forth.

Error-trapping: Commands since the last file save can be undone one at a time, or redone. By default, dimensioning is associative; dimensions change as you edit the underlying objects. But dimensions can also be fixed; it is not easy to see which are which in a normal drawing. ■



The AutoSketch cursor, not visible in the screen image due to limitations in our screen-capture software, explains what tool it is on. A more complete explanation is at the top of the screen.



AutoSketch symbol library for framing.

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Access raceway saves time and money, now and well into the future. It installs faster and neater than in-wall wiring. It's energy efficient because walls, vapor barriers and insulation remain intact.



TurboCAD

Continued from page 49

buttons changes with different commands, and is shown at the bottom of the screen.

You can keep any number of "profile" files on hand, each with default settings for a new drawing. The effect is much the same as "stationery" files in MacDraft and typical Macintosh software.

The cursor, similar to AutoSketch's "smart" cursor, displays the use of each icon as you cover it. There's no "long" explanation on screen as well, however.

Offices that handle lots of government work will find the IGES translation capability particularly appealing. But many users will be those who are upgrading from the DOS TurboCAD.

Circle number **308**

TurboCAD Professional Summary

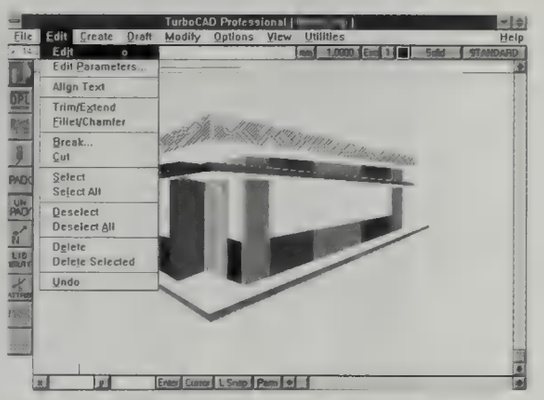
Equipment required: Any computer that can run Windows in enhanced mode; 2 MB of RAM minimum, 4 MB or more recommended. We also recommend a fast machine; it is sluggish on a slow 16 MHz 80386, even with coprocessor. Program files take about 4 MB of disk space. Three-button mouse highly recommended; digitizer or 2-button mouse (or the keyboard alone) are usable. VGA monitor.

Vendor: IMSI, 1938 Fourth St., San Rafael, Calif. 94901; 415/454-1701. $395.

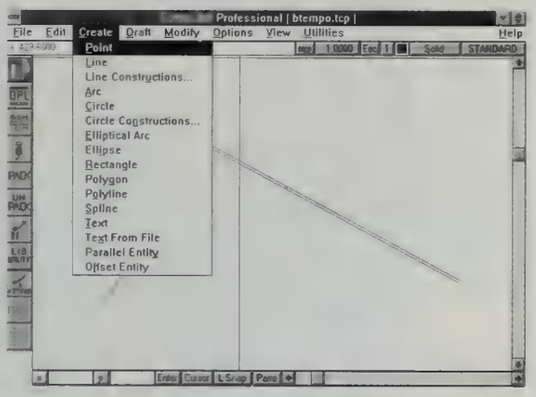
Manual: One 546-page reference guide and tutorial. Well done. The firm's BBS line is 415/454-2893.

Ease-of-use: A bit slow; many menu changes force a screen redraw, too. But many of the tools are just made for architects—parallel lines (straight or curved; after you draw one line, you can fit a parallel to it in two mouse clicks), chamfers, a bill-of-materials processor, the macro language, and so forth. And some tricks like turning off layers and saving defined views (up to 30 per drawing) help speed things up.

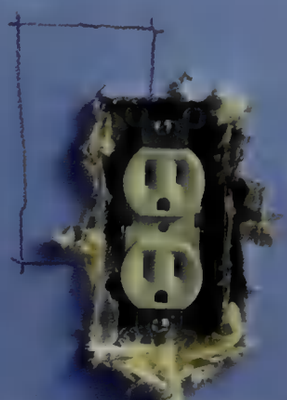
Error-trapping: There's good on-screen prompting, and an undo feature. There's also an automatic timed-save feature. You can pull a symbol in from a library and add it to the drawing directly. Or, you can refer to it in the library. If you refer to it, changing the library symbol affects all the drawings it is connected to. ■



TurboCAD's Edit Menu and tools.



Drawing tools in TurboCAD are pulled from menu or from a palette that changes (left) as different menus are pulled.



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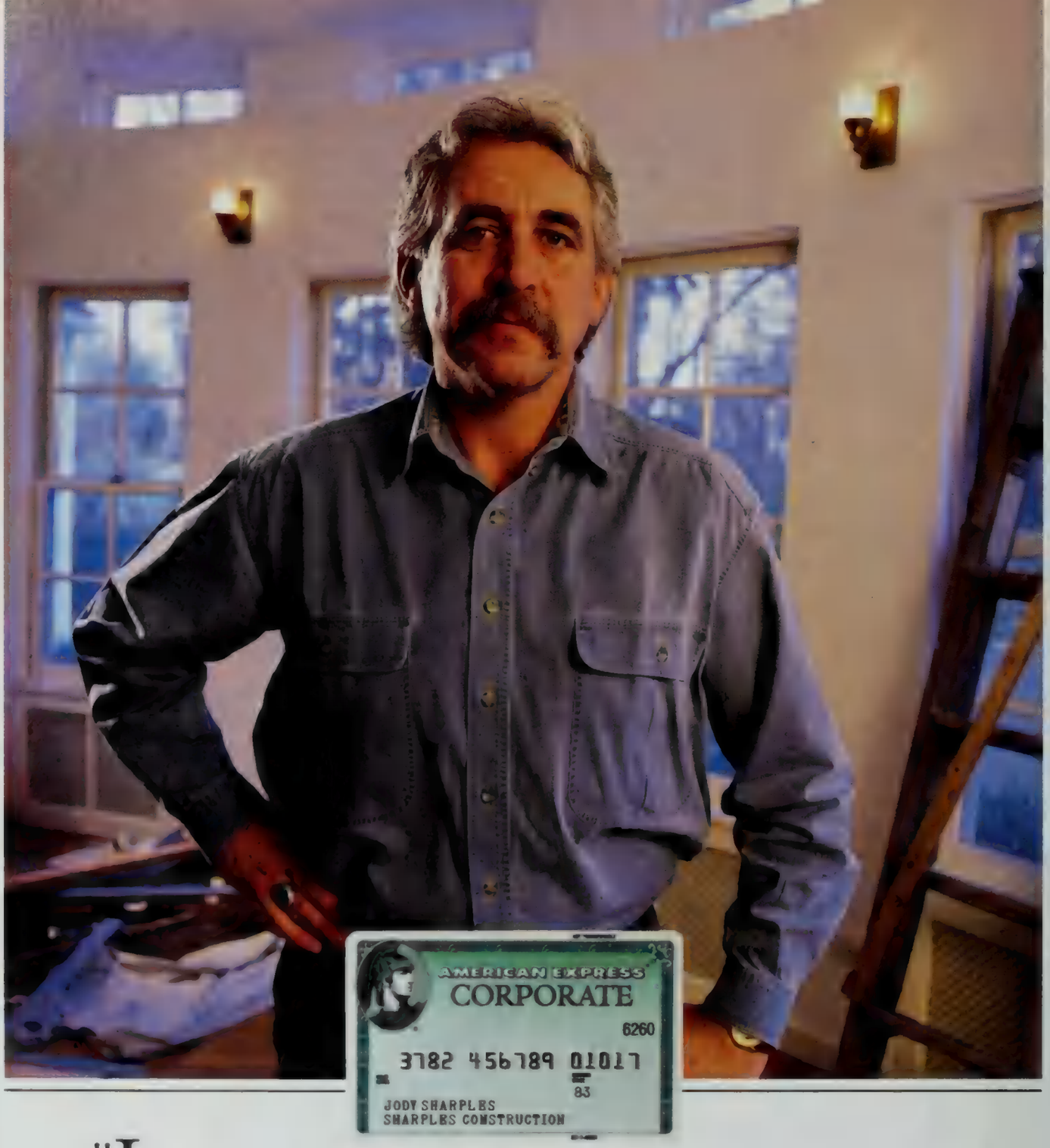
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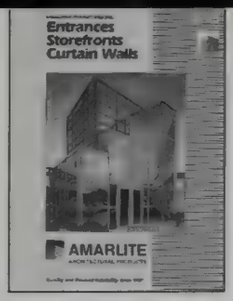
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Product Literature/Door Systems



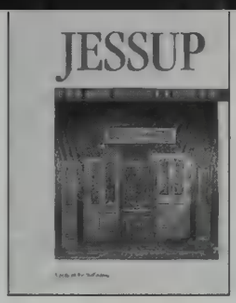
400. Architectural wood doors
A colorful 20-page brochure demonstrates design and construction features of carved-wood Moderne, MAX, and Sculpturewood residential entry doors. Photos and drawings illustrate frame details, stain colors, door pulls, and vision-light configurations. Forms+Surfaces, Santa Barbara, Calif.



401. Commercial entries
Aluminum and glass door systems are made with narrow-, medium- and wide-stile framing to suit the different traffic requirements of stores, offices, hotels, hospitals, and institutions. Hinged doors, sliders, and storefronts are illustrated in a 16-page catalog. Amarlite Architectural Products, Atlanta.



402. Anti-infiltration
A catalog insert explains how the new Delta commercial entrance incorporates an unusual, angled presentation with thermally efficient construction to make a system that uses wind pressure itself to resist air infiltration. Vistawall Architectural Products, Terrell, Texas.



403. Raised-panel doors
Premier doors, sidelights, and transoms are said not to warp, rack, or split, even when exposed to extremes of weather. The line now includes Northern red oak and mahogany entries in seven styles, as well as passage, French, and bifold interior doors. Custom designs can be specified for historic restorations. Jessup Door Co., Dowagiac, Mich.



404. Steel doors and frames
New brochures for both Commercial Doors and Frame Systems offer product and in-use illustrations, detail standard construction features, insulating values, and fire ratings, and demonstrate correct installation methods. Benchmark, Bridgeton, Mo.



405. Automatic door systems
An architectural catalog describes both doors and operators for standard and custom applications. Sliding doors can be specified in several types of aluminum, stainless steel, bronze, and "all glass," as well as wood and laminate finishes. Besam, East Windsor, N. J.
Continued on page 125

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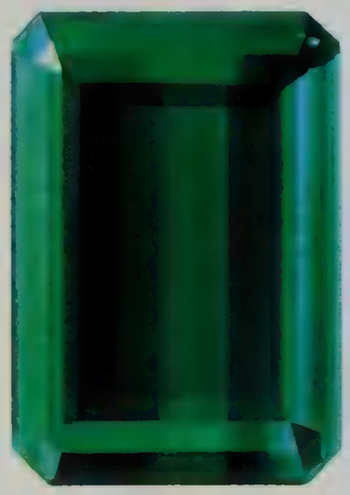


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Product Literature/Door Systems



406. Safe and accessible
A brochure describes Look-See automatic sliding doors, with three sensing devices to insure user safety, as well as manual doors for hospital intensive-care units and automated swinging doors. Operators offer versatile surface, rail, and concealed mounting options; systems include doors, jambs, and headers. Dor-O-Matic, Harwood Heights, Ill.



407. Storefront systems
Aluminum-framed entrances, storefronts, and low-rise curtain walls covered in a 16-page catalog, with product descriptions, quarter-size details, application data, and suggested specifications. Color photos of recent completed projects. Tubelite Indal Architectural Systems, Reed City, Mich.



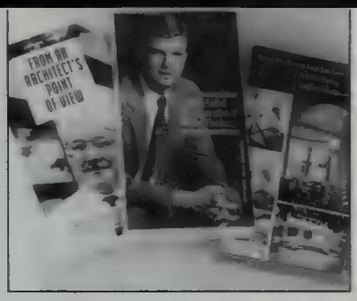
408. B-label FRP door
A new product, corrosion-resistant fiberglass-reinforced plastic Corrim doors meet ANSI/UL 10B 1 1/2-hr fire-label requirements, pass the hose-stream test, and self-seal against fumes and smoke as per proposed ASTM E152-modified. Ratings apply to single 4- by 8-ft doors and pairs for 8- by 8-ft openings. Fenestra Corp., Erie, Pa.



409. Rolling doors/grilles
A 24-page catalog details rolling doors of galvanized steel, stainless steel, and aluminum. Applications include service doors, fire doors, counter grilles, and enclosures; products feature easy test/reset devices for automatic fire doors, a UL four-hour fire door, and a choice of 186 powder-coat colors. Cornell Iron Works, Inc., Mountaintop, Pa.



410. Steel fire door
A bulletin describes a new type of fire door, which uses a constantly engaged hold-open brake for automatic closure control rather than a spring tensioning device. The door is said to be easy to install, maintain, test, and reset, and to perform more reliably in an emergency. McKeon Rolling Doors., Brooklyn, N. Y.



411. Folding-fire-door video
A fire-door manufacturer offers three video walk-throughs illustrating the open-space design solutions and code-compliance benefits of accordion-fold fire doors. Tapes cover built projects, technical details, and installation and operation. Won-Door Corp., Salt Lake City. ■

For more information, circle item numbers on Reader Service Cards.

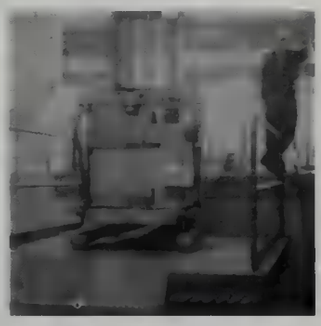
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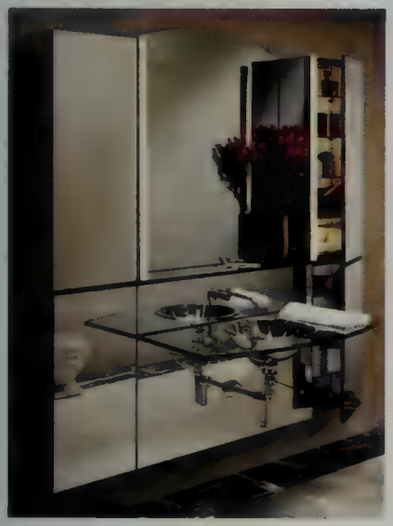
Please write to:
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[illegible] Road - Teterboro, New Jersey 07608

Circle 44 on inquiry card

New Products



310. Office a la carte
Designed by SOM alumni Lauren Rottet and Richard Riveire, the manager-level Attaché wood system integrates clean details and simple proportions in mix-and-match work surfaces, pedestals, and cabinets based on an 18-in. module. Credenza shown consists of several storage and file units united under an etched-glass top. Halcon, Stewartville, Minn.



311. Almost-all-glass bath
A new product for this luxury bath-cabinet manufacturer, a glass-top sink module, with chrome faucetry and polished stainless-steel basin, can be set directly under mirrored cabinets, creating a free-floating appearance. Plumbing and support fittings are concealed by the mirrored housing. Sink units come in 27- and 43-in. widths. Robern, Inc., Bensalem, Pa.



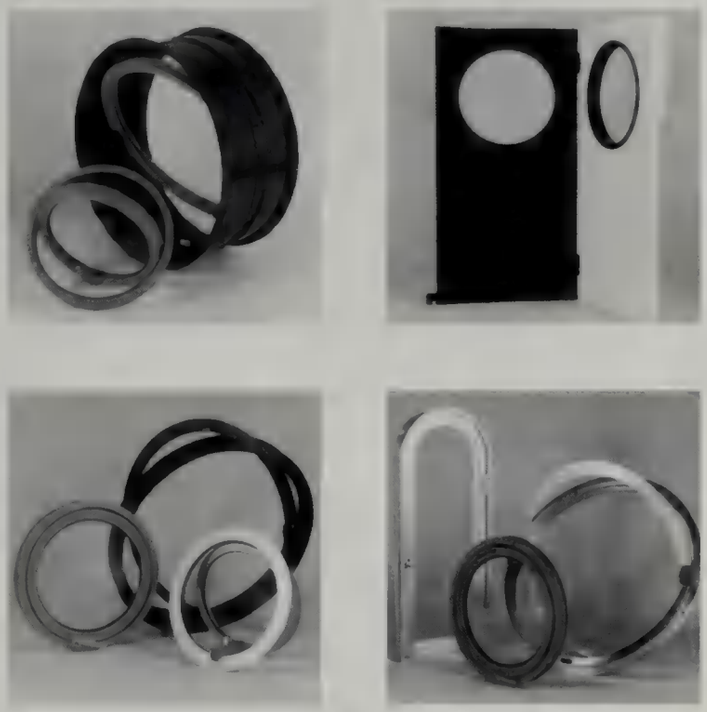
312. Architectural woolly
A Princeton-based retailer specializing in woolens convinced Michael Graves that the architect's bold graphics would look wonderful interpreted in hand-loomed Irish-wool throws. He was right. To be sold directly and through museum stores, the fringe-trimmed squares (in three different patterns) are 54-in. on a side, priced at $75 plus UPS (800/257-9445). Landau, Princeton, N. J.



313. Lounge-as-statement
Designed by Guss Design in Germany but made in America, Futu doesn't look like an ordinary "modular lounge." Available with or without streamlined metal arms, the piece has a flared seat cantilevered over splayed legs. A selection of intermediate tables permits straight, round, and serpentine configurations for large-area seating. Brayton International, High Point, N. C.
Continued on page 133

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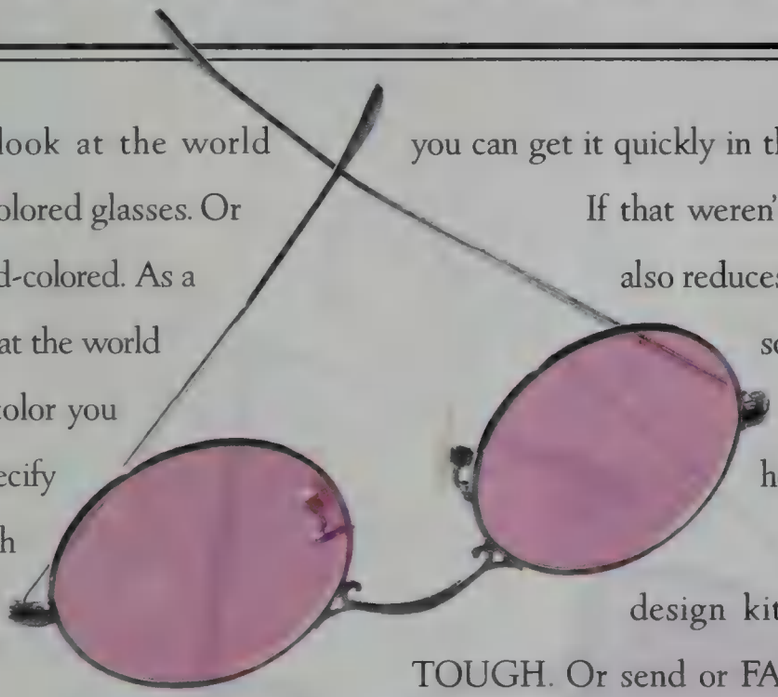


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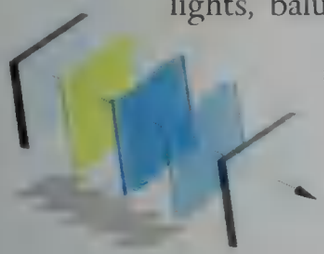

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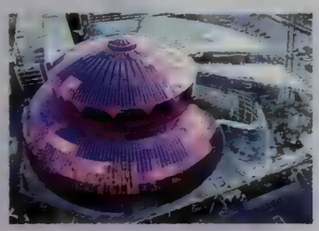
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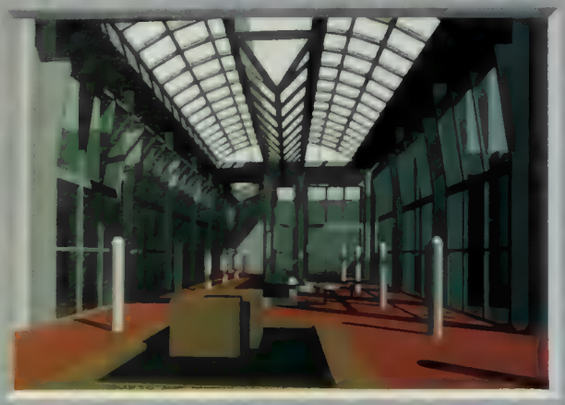
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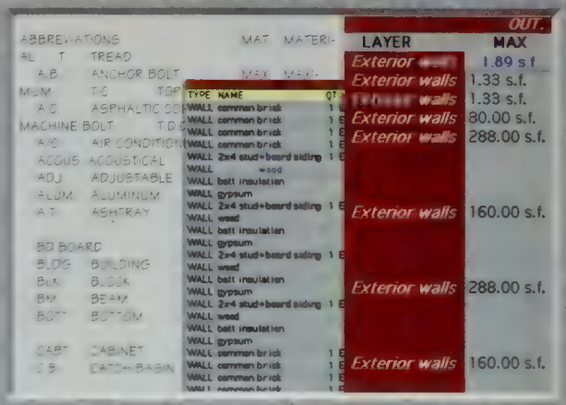


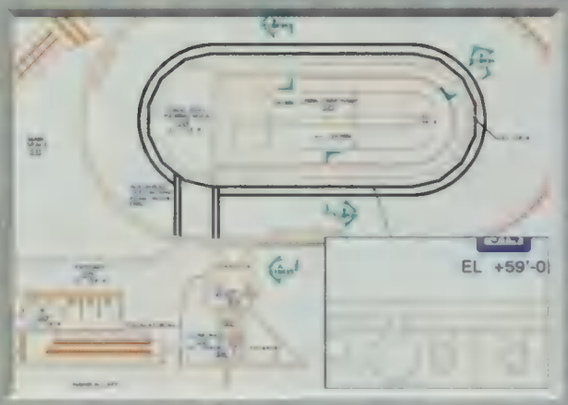
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Circle 47 on inquiry card

Computers *Begins on page 48*

Architectural Power Tools

This add-on for AutoCAD Release 12 provides many productivity tools for easier production drafting. It is not as comprehensive as packages available from ASG, KETIV, and Softdesk, but requires far less disk space. Indeed, the philosophy behind Architectural Power Tools and other packages in its class is *not* to provide extra access to databases and other advanced AutoCAD features (although it does offer a schedule database). These tools are aimed almost entirely at making drawing easier, more standard, and more precise.

There are separate modules for drawing doors, windows, walls, and fixtures, and for items like roofs and stairs that require some parametric calculations. There are nice symbols for trees, people, vehicles, and a hatch-pattern generator, text editor, and access to flexible layering. There's even an easy-to-use utility for making walk-through movies. You can edit in 2-D or 3-D.

You can access the tools through a pull-down menu the add-on automatically adds to your AutoCAD copy. Or, you can use a 12x12 digitizer. A 3.25x10-in. digitizer template is included in the package.
Circle number **309**

Architectural Power Tools Summary

Equipment required: Any computer capable of running AutoCAD 12 for DOS. Mouse or digitizer. The files take about 4 MB on your fixed disk.
Vendor: Eclipse Software, Inc., 301 West Holly, Bellingham, Wash. 98225, 206/676-6175. $800; site licenses and educational discounts available. A 3-D face modeler is due this fall as an add-on or stand-alone.
Manual: A single 6x9-in. looseleaf manual contains good tutorials and a command reference. The manual is well-written.
Ease-of-use: Good. The command list is accessible from a single pull-down menu. The digitizer template, if you use it, takes the place of opening a menu choice; secondary commands are accessed on the screen. The wall drawing facility is excellent. Roofs and stairs are easy. You'll have to modify your AutoCAD startup file to include an environment variable telling AutoCAD in which directory the tools are located.
Error-trapping: As good as standard AutoCAD. ■

Important Information

About Manville® Roofing Systems Phenolic Foam Roof Insulation & Possible Steel Deck Corrosion

From January 1989 to February 1992, Manville® Roofing Systems produced UltraGard® Premier, a glass mat faced phenolic foam roof insulation, which is no longer manufactured by us.

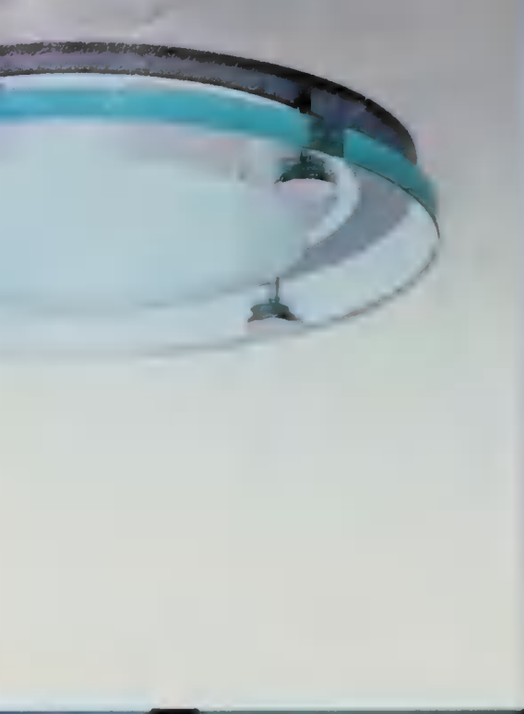
Recent observations suggest there is a potential for phenolic foam roof insulation to contribute to the corrosion of steel roof decks. In extreme conditions, where insulation is wet or damaged, the corrosion reaction could progress to a point which could weaken or penetrate an area in the metal deck.

Therefore, where evidence of wet or damaged phenolic insulation exists, or severe deck corrosion is observed, care should be taken in operating equipment, moving heavy loads and walking across the roof.

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Dodge *continued from page 41*

further weakening for public buildings, specifically detention facilities, and various types of transportation structures. Meanwhile, health-facilities construction has held fairly close to last year's heightened level, but the cost-containment provisions certain to be in any healthcare-reform package do not bode well for large-scale expansion in the years ahead. Overall, institutional building is projected to slip an additional one percent in 1993, and then resume its gradual upward trend.

Investment Properties

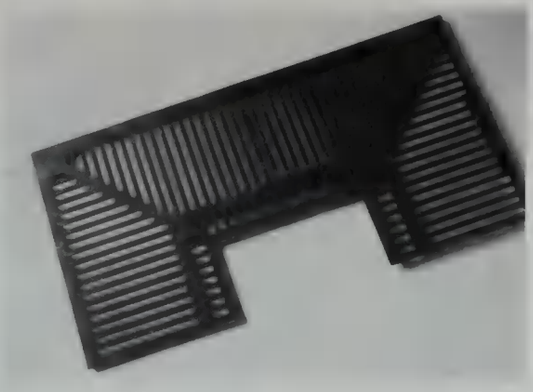
The outlook for the income-properties group (commercial building and multifamily housing) is little changed from earlier forecasts. with the slight exception that office and warehouse construction actually fell some more in 1993's first quarter (establishing a new low for both structure types) before experiencing a modest turnaround in the April-June period. With the economy's poor growth in employment, there has been only a slight reduction in the excess supply of space, even with the record low levels of building. Given the degree of imbalance in many of these markets, the proposal by the administration to bring back the passive-loss provision for real-estate developers is not likely to have much impact.

Although store construction in the first quarter slipped back from its strong end-of-1992 rate, it still stands out as the maverick of the income-properties group. The growth of discount outlets and specialty stores has been the driving force behind this trend, and further expansion is likely in 1993. Still, the income-property group as a whole—beset by dismal contracting for offices, warehouses, and hotels—only will be able to show low-level stability for this year.

On balance, three of the four sectors above are staying close to earlier projections. The weakness for single-family housing has meant a reduction in the 1993 estimate for total housing starts from 1.250 million to 1.200 million. With the lower housing volume, the growth expected for total construction in 1993 has been downgraded from 8 percent to 6 percent. ■

Prepared August 1993
Robert Murray, Vice President, Economic Affairs
F. W. Dodge Construction Statistics and Forecasts; McGraw-Hill Construction Information Group

New Products *continued from page 127*



314. ADA-compliant gratings

The Guidelines established by the Architectural and Transportation Barriers Compliance Board call for narrower-than-customary slots in tree or trench grates in order not to catch cane tips or wheelchair wheels. Grates are cast iron or cast aluminum, with optional Lexan-covered lightwells. Prime-coat, polyurethane, or powercoat finishes are available for 15 pedestrian-proof tree grates that meet ADA guidelines "without additional cost." Steel tree guards match grates. Ironsmith, Palm Desert, Calif.
Continued on page 135



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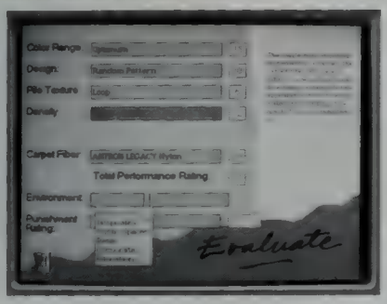
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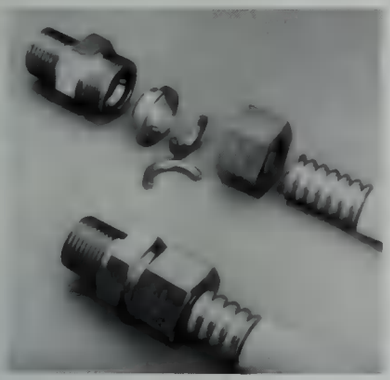
Terrell, TX (214) 551-6100 Lincoln, RI (401) 333-2906 Atlanta, GA (404) 938-3359 Modesto, CA (209) 545-5231

Circle 51 on inquiry card

New Products *continued from page 133*



315. Carpet-specification CAD
The Carpet Mentor, a PC program running under Windows, was formatted to help architects and designers develop specs for carpet construction, design, and fiber as well as specific conditions of intended use and environment. DuPont Co., Wilmington, Del.



316. Piping for natural gas
A flexible gas routing system, new piping is corrugated, semi-rigid stainless-steel tubing covered with a tough protective plastic jacket. Tubing can be snaked through joists and around most obstructions; its flexibility provides safety against seismic and settling movement. Meets ANSI AGA LC1 specs. Titeflex Industrial, Springfield, Mass.



317. Raster-map program
Sure!MAPS 2.0, priced at $199, is said to bring the pin-point precision and color details of raster mapping software into the PC market. Displays point-specific geographical data on several levels, from satellite shots to exact street locations, created in GIS-like imagery. Horizons Technology, Inc. San Diego, Calif.



318. Impact-resistant wall
A prefabricated security panel for interior walls, CoreGuard is a composite of 5/8- or 3/4-in.-thick gypsum wallboard and an .081-in.-thick layer of Lexan polycarbonate sheet. The laminated wallboard is nailed or screwed to wood or metal studs and the room-facing wallboard surface is decorated. Walls offer at least 600 ft/lb of impact strength, have one- or two-hr. UL rating per ASTM E-119, and are suggested for psychiatric hospital rooms and low-level detention centers. CoreGuard, Inc., Bay City, Mich.



319. Fiber-cement roofing
FireFree roofing materials are said to achieve a very realistic appearance of natural wood shakes, hand-split slate, or random-width cedar shingles in a Class A fire-rated fiber-cement material. Lightweight (under 400 lb per roofing sq) and walkable, the integrally colored roof resists hail and freeze/thaw cycling, and will not encourage growth of moss, fungus, or insects. Re-Con Building Products, Inc., Clarke Group, Sumas, Wash.
Continued on page 137

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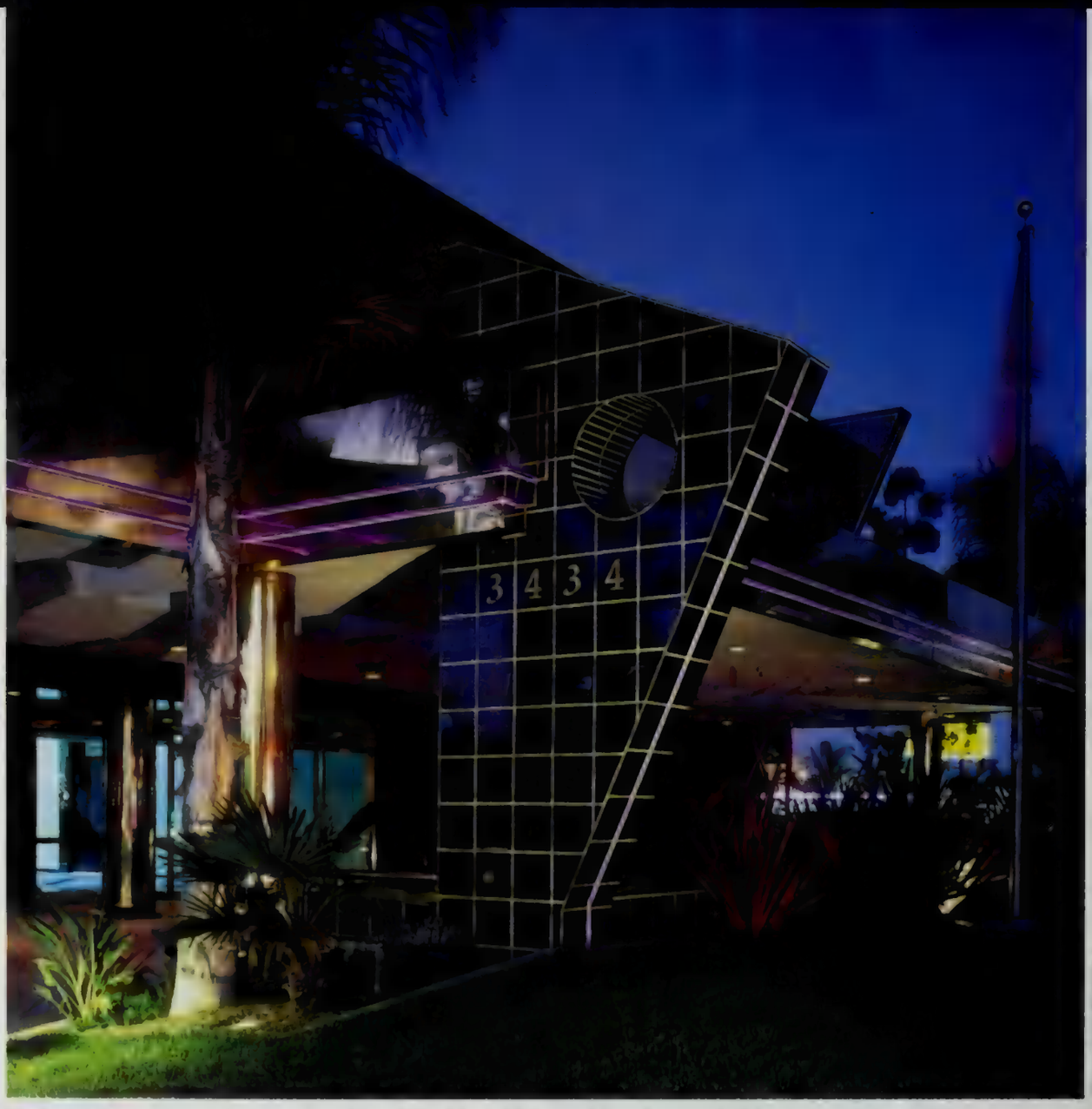
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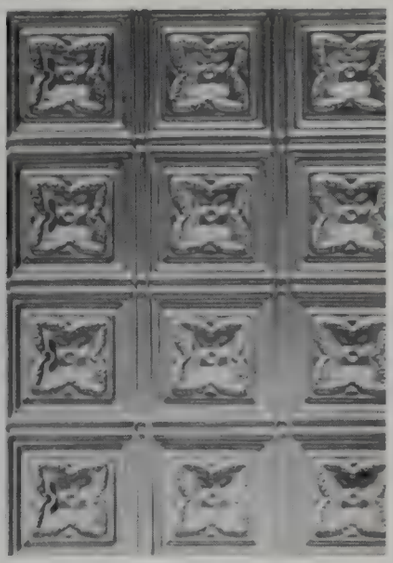
BUCHTAL CERAMICS

Tile Contractor: Klaser Tile, San Diego, CA
Product: 12×12 717 Brilliant Black

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320. Anodized-finish shower
Available as a mostly-glass "kit" of door, filler, and side-panel components in a range of sizes, the Profile enclosure now offers two anodized-finish options—brass and silver tones—for its cylindrical metal posts and jambs. Kohler Co., Kohler, Wis.



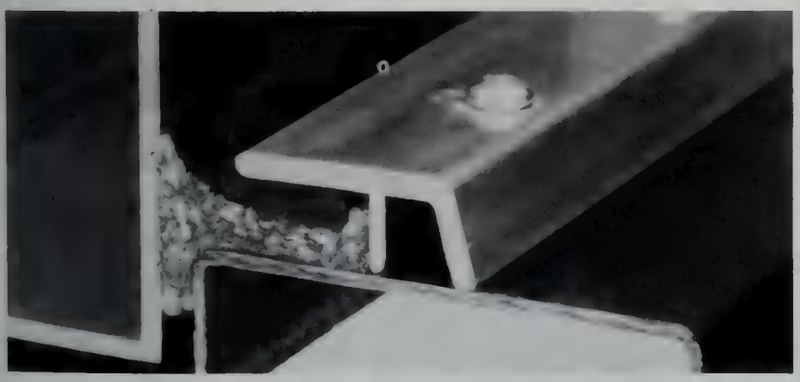
323. Pressed-tin trim
A newly reintroduced 6-in.-repeat antique-pattern ceiling is made of a more-rust-resistant tin-plated steel. The metal comes in 2- by 4-ft panels for nail-up or lay-in installation; coordinating cornice lengths are available. Chelsea Decorative Metal Co., Houston.



321. FR slipsheet
Manniglas 1208, for use between combustible deck and single-ply roofing where a UL Class A fire rating is needed, is described as a lighter, less-costly alternative to gypsum board. Lydall Manning, Troy, N. Y.



314. Specialty windows
Round- and oval-shaped wood windows incorporate low-maintenance vinyl cladding and energy-saving dual glazings into a turn-of-the-last-century style. Andersen Windows, Inc., Bayport, Minn.



322. Intumescent door seal
The FS-3 door-seal system integrates "soft puff" intumescent material into the head, jamb, and door-bottom components themselves, enabling the entire fire-door assembly to satisfy new positive-pressure fire, heat, and smoke tests. Zero International, Bronx, N. Y.
Continued on page 141

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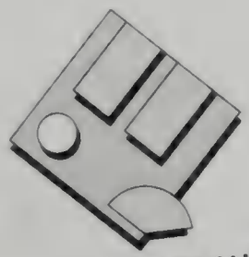
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Manufacturer Sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 78-83
Go Silk Showroom
New York City
Tod Williams Billie Tsien and Associates, Architect
Paints: Benjamin Moore. Sliding-door hardware: Grant Hardware. Pivot hinges: Dor-O-Matic. Conference table: Masonite Corp., fabricated by William Somerville. Pendant fixture in conference room: Neo-Ray. Low-voltage track lights: Halo. Interior furniture and walls: Custom design by architects. Rubber-tile flooring: Tuflex. Carpet: Jack Lenor Larsen.

Pages 84-89
Building U2
U.S. Robotics, Inc.
Skokie, Illinois
Valerio Associates, Inc., Architect
VCT flooring (lobby and laboratories): Kentile; Armstrong World Ind.; VPI. Paneling: Fin-Color-Ply Plywood Corp. Aluminum entrance doors: U. S. Aluminum. Metal doors: Coleman Fireproof Door. Wood doors, furnishings, and benches: Oster Woodworking Co. Locksets: FSB. Hinges: McKinney. Closers: Dorma. Surface ceilings and grid: USG Interiors (Fineline). Countertops: Wilsonart. Carpet: Mohawk. Office furniture: Kimball (Cetra). Furnishings and tables: Custom Cut. Chairs: Kimball (Arena VDT). Indoor lighting: Zumtobel, Artemide, Halo, Metalux. Banquette seating and main conference room chairs: Carnegie Fabrics.

Pages 90-95
Jil Sander Paris
Paris, France
Gabellini Associates, Architect
Staircase railing: DSBC. Glass: Guillaume Saalburg. Stone: Grant France Stone Installers. Stone (front facade limestone): George A. Williams & Sons Ltd. White marble panels: Serio, Spa Carrara, Stone Fabricators. Floor treatment, stairs: Indiana Limestone Co. Indoor lighting: Modular International. Fluorescent wall-washer Lighting: Elliptipar. Computer dimming system: Lutron International.

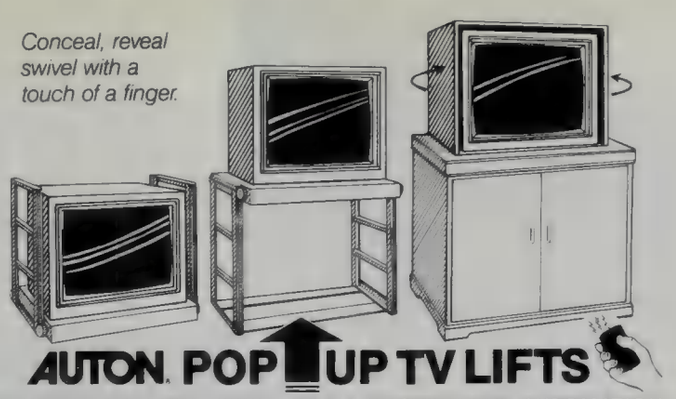
Pages 96-101
The Princess of Wales Theater
Toronto, Canada
Lett/Smith, Architect
Yabu Pushelberg, Interior Designer
All mosaics: Gem Campbell. Column covers and all finishes: Moss & Lam Special Surface Finishing Co. Steel door framing: Canadian Rogers. Metal light fixtures and sconces: Jeff Goodman (artisans); Lumalux Corp. (fabricator). Balcony fixtures: V.N. Custom Metalwork (fabricator). Paints and stains: Para, Sherwin Williams. Face brick: Belden Brick. Masonry: Indiana Limestone. Aluminum curtain walls and windows: Kawneer. Sheet-metal roof: Vic West. Multiple-glazed glass: AFG. Entrance doors: Canadian Rogers. Metal doors: SW Fleming. Sliding doors: Dor-A-Matic. Rolling doors: Kinnear. Hardware: Sargent. Sprinkler system: National Fire Equipment. Suspension system ceiling: Donn. Tile: Gruppo Bisazza. Carpet. Elte Carpets. Theatre seating: Irwin Seating. Seating and tables: Custom by designers. Auditorium upholstery walls: Maharam. Lighting throughout theater: Eureka; Prescolite. Outdoor lighting: Norbert Belfer. Wall mounted, pendant & free standing light fixture: Custom design by Yabu Pushelberg. Elevators: Northern Elevator. Escalators: Dover Elevators.

Pages 102-105
B. B. Dakota
Laguna Beach, Florida
Jane Sachs, Designer
Industrial fluorescent strips: Sylvania. Sheet vinyl: Allstate. Task seating: Custom design by architect. Paints: Benjamin Moore. Casement windows: Custom design by architect.

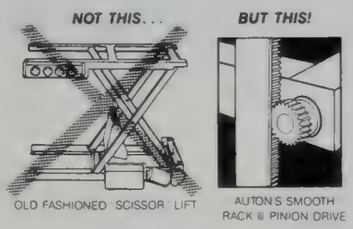
Pages 110-117
Penthouse Apartment
New York City
Smith-Miller + Hawkinson, Architect
Light switches: Lutron. Chairs: Knoll, Palazatti. Bedside light: Artemide. Air diffuser: Titus. Window treatment (near library): Sol-R-Control Fabric. Wet plaster-installed by Oscar Williams: U.S. Gypsum. Steel windows and metal doors: Hope's Windows. Sliding doors: Custom by Ted Levine (Carpenter). Upswinging doors: Metal worker, Tom Hand. Industrial and hangar doors and cabinetwork, woodwork: John Van Wagner in asssociation with Rohner Furniture. Mortise, lever locksets and flush pulls: Modric. Hinges: Stanley, Rixon. Cabinet hardware pulls: Tydix-Custom. Wet plaster: Oscar Williams-subcontractor. Paints and stains: Benjamin Moore-John Milkey, subcontractor. Paneling: Pearwood Veneer. Kitchen & master bath tile: Intertile. Dressing room, living and dining room carpet: V'Soske. Indoor lighting: Belfer, Edison Price. Outdoor lighting: McPhilben.

Corrections
Credit for the Spiegel Corporate Headquarters Building [RECORD, July 1993, page 68] should have listed Grenald Associates as Lighting Designer, excluding office areas and the cafeteria, which were lighted by Horton Lees.

OWP&P was the firm that came in third in the *Chicago Tribune* redesign contest for the Cabrini Green housing project, not OWP&T [RECORD, July 1993, page 27].



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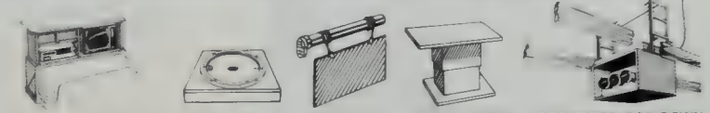


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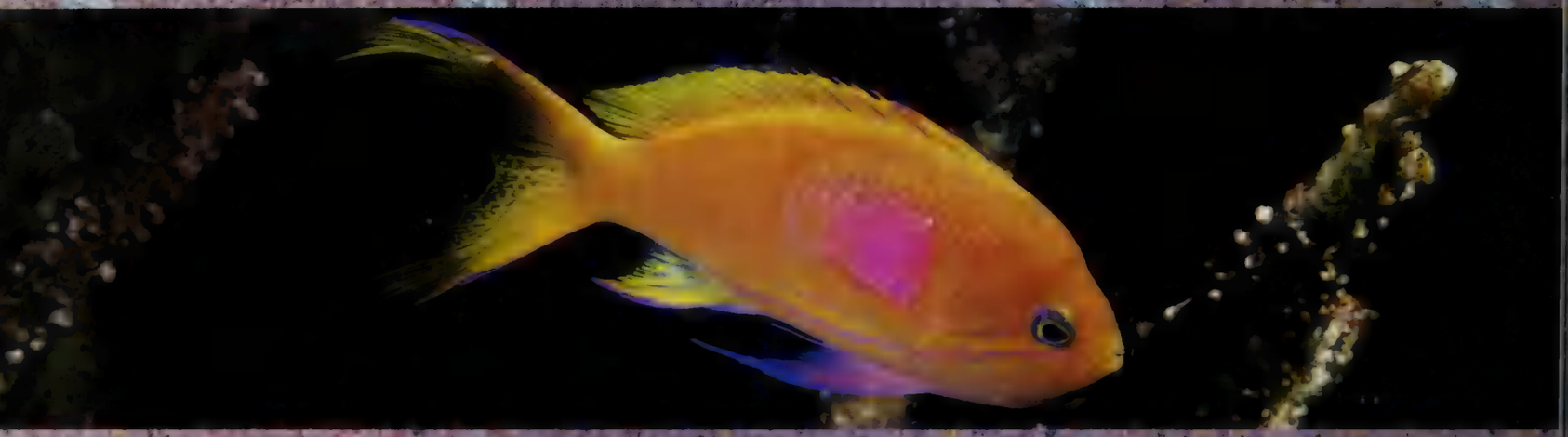
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1





2, 2a

Phillipe Starck strikes thrice

124. Starck-design chairs by Italian and Swiss makers combine polypropylene and metal in similar ways. Kartell's Glob chairs (1) have rear legs and embracing backrest of steel tubing; seat and front legs are colorful molded plastic. Armchairs and stools also available; all stack. Vitra's more formal Louis 20 armchairs (2, 2a) have blow-molded unitary back/seat/front legs; Starck's signature horn shape appears as the aluminum rear legs. Modern Age, New York City.

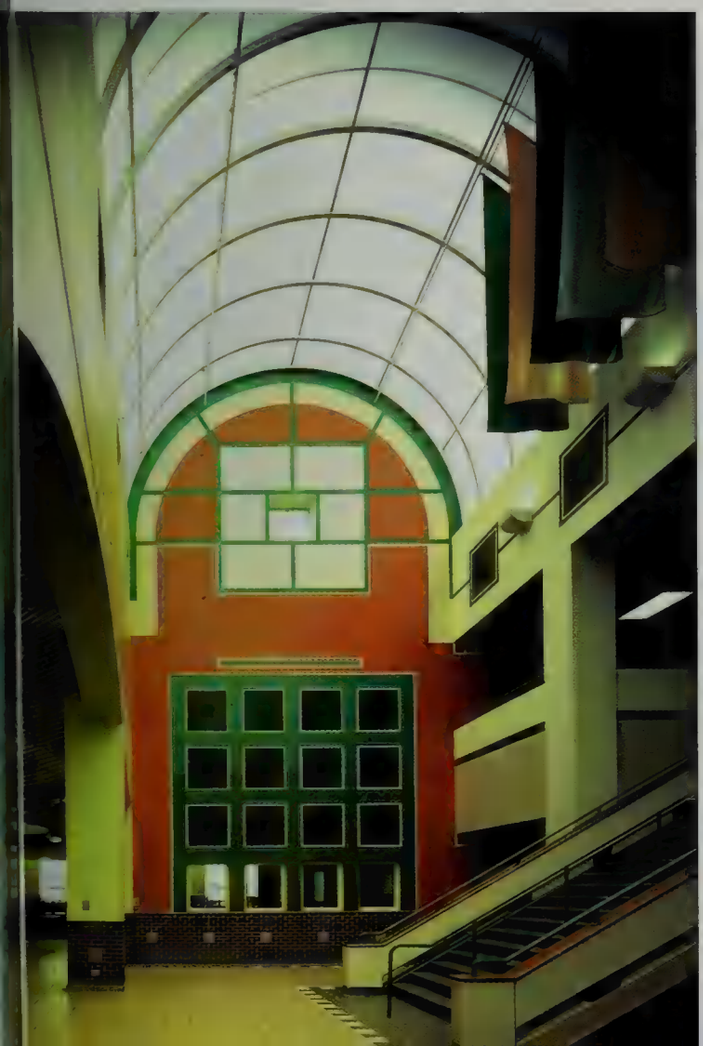
127. Maestro Starck turned to the German hardware firm FSB to produce his first-ever set of door handles and cabinet knobs. The asymmetric designs subtly indicate function: a rams-horn-shaped latch (3) just asks to be pushed down; teardrop knobs (3a) say "pull." The U. S. distributor will furnish the natural-aluminum handlesets with the necessary locks and latches for specific commercial and residential applications. The Ironmonger, Inc., Chicago. ■



3



3a



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Everybody's happy at Ocean Palms, Port Royal Plantation. This unique and successful interval ownership development on Hilton Head Island was begun in 1989 and continues today, with each successive eight-unit building sold out before construction ends.

The innovative design of Ocean Palms is enhanced by MBCI's popular Craftsman SB-12 pre-formed metal roofing system. Small ribs and narrow spacing provide strong aesthetic appeal, while tough pre-painted Galvalume® panels provide long life and easy maintenance. The system's UL90 rating provides roof integrity and ease of mind for unit owners, even with the strong winds of Hilton Head.

MBCI is proud to be associated with this project. It's a good example of what can happen when everybody contributes their very best... from developer to architect, contractor to system manufacturer.

We invite you to find out more about us, more about the many advantages of our top-quality, competitively priced pre-formed metal roofing systems. Take a look at your Sweet's Catalog: 07410/MBC and 07610/MBC. Then call the MBCI office nearest you.

MBCI
Metal Roof and Wall Systems

Houston 713/445-8555

Lubbock 806/747-4291	Atlanta 404/948-7568
Oklahoma City 405/672-7676	Tampa 813/752-3474
San Antonio 210/661-2409	Richmond 804/526-3375
Dallas 214/988-3300	Indianapolis 317/398-4400











Architect: Leonard, Kinsey & Associates, Hilton Head SC • Architect: Gehener Lewis Associates, Atlanta GA
General Contractor: Graves Commercial Builders, Hilton Head SC
Contractor: Ronnie Smith Roofing, Hilton Head, SC • Metal Roofing System: MBCI's Craftsman SB-12 Polar White

Circle 80 on inquiry card

Product Literature Showcase

To Advertise: Call 1-800-544-7929
Fax: 212-512-2074

Fire Retardants and Preservatives



Hoover Treated Wood Products' new 12-page Sweet's catalog features Pyro-Guard third generation interior fire retardant lumber and plywood for roof sheathing and other structural uses; Exterior Fire-X FRT lumber and plywood for decks, balconies, siding and other outside uses; and CCA preservative treated lumber and plywood that's kiln dried after treatment.

Hoover Treated Wood

Circle 64 on Inquiry card

Revere Copper Roofing - Ultrapan



Ultrapan is lightweight. That means less extensive - & less expensive - framing & sheathing are required. When roof coverings require certain decks, venting or other special construction, copper does not. **Ultrapan** can be installed over almost any substrate, does not require underside venting and can be used in conjunction with most other materials. Revere Copper Products, Inc. is today the world's leading producer of roofing copper. Call 800-448-1776 for more information.

Revere Copper Products, Inc.

Circle 65 on Inquiry card

Architectural Interiors Wall & Corner Guard Systems

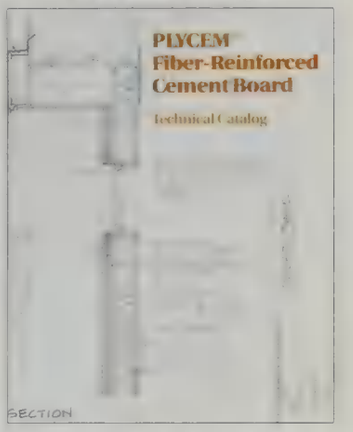


New Colorful 24-page catalog features full line of wall & corner guards, handrails, baseboard systems & door protection products to complement your most stringent design/color requirements & functionally reduce impact damage anywhere in heavy traffic environments: government buildings,office complexes, shopping malls, schools/colleges & healthcare facilities. Select from many styles in 40 NEW COLORS for contemporary design-coordinated projects.

Pawling Corporation

Circle 66 on Inquiry card

Need Fire-Resistant Roof Sheathing?

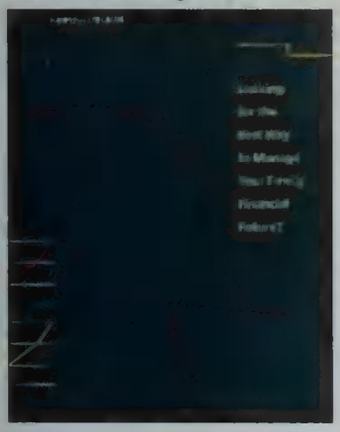


PLYCEM® is the answer! PLYCEM Fiber-Reinforced Cement Boards are as versatile as plywood, but they are non-combustible, making PLYCEM the perfect replacement for failed FRT plywood! PLYCEM is rot-proof and moisture resistant, but it is cut and installed using conventional carpentry tools. To learn about the many applications for PLYCEM, call: 1-800-243-6677.

U.S. Plycem Corp.

Circle 67 on Inquiry card

CFMS (Computer-based Financial Mgt. System)

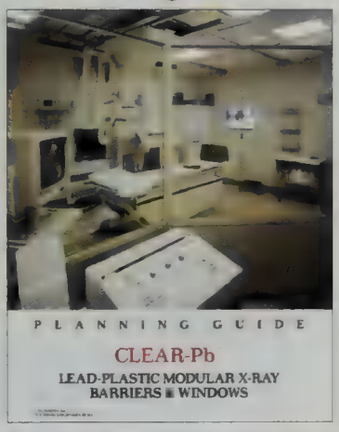


Harper and Shuman develops, sells and supports financial management software specifically for architects. The only system of its kind sponsored by the AIA. MICRO/CFMS runs on PCs and CFMS runs on the DEC VAX. A modular approach lets you buy only what you need.
Call today 1-800-275-2525.

Harper & Shuman, Inc.

Circle 68 on Inquiry card

Free X-Ray Room Planning Guide



New guide illustrates user designed installations of CLEAR-Pb Lead-Plastic Modular Barriers and Windows in hospitals, radiation therapy centers. CLEAR-Pb is a transparent, lead-impregnated plastic sheet in lead equivalences from 0.3 to 2.0 mm; over 200 stock sizes up to 6 x 8 ft. (larger on special order). For more information call 516-741-7717 or FAX 516-741-5414.

Nuclear Associates

Circle 69 on Inquiry card

Benches & Accessories in 170 Designer Colors

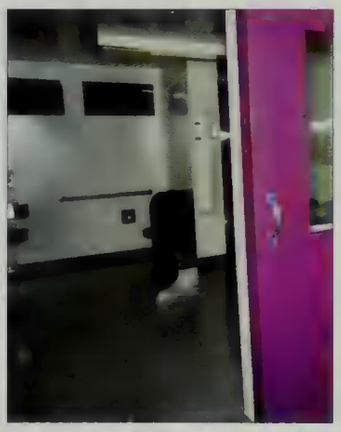


Shown above is the stately TimberForm Manor bench. One of over 350 products for the site offered in a wide selection of "mild to wild" coating colors. An architects catalog of traditional through contemporary design families features coordinated seating, planters, litter containers, ash receptacles, tables and bike racks. Select from steel, cast iron, perforated metal, welded wire or wood. Call toll-free 1-800/547-1940 (ext. 515).

Columbia Cascade

Circle 70 on Inquiry card

Infectious-Disease Isolation Room



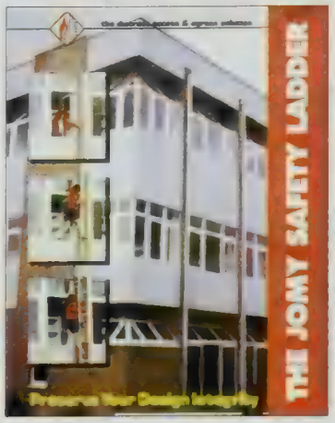
The **MARK IDU SERIES 2000** is state of the art in self-contained infectious Disease Isolation Units. These modular Negative/Positive Pressure Units serve as a multipurpose infection control environment, that is computer controlled and monitored with a programmable touch screed command microprocessor. The air conditioning, heating and ventilating system, complete with ductwork, is also computer controlled.
1-800-835-6275.

Mark Care Medical Systems

Circle 71 on Inquiry card

Product Literature Showcase

The Discrete Access & Egress Solution



Security requirements, space constraints and aesthetic considerations are a few of the problem-solving applications for the JOMY Safety Ladder. The ladder's discrete appearance makes it an ideal solution for access and egress requirements. The ladder looks like a drainpipe when closed, but opens to a heavy-duty ladder with slip-resistant rungs and a safety rail. Jomy Safety Ladder Co.,1728 18th St., Ste. 201, Boulder, CO 80302. Phone 800-255-2591.

Jomy Safety Ladder

Circle 72 on Inquiry card

Decorative Grilles



Unusual visual effects emerge when our grilles are designed for area effects. Versatility is the theme. R&G offers architects and interior designers many ways to express the changing forms of metal with the integrity of R&G's architectural grilles. Custom or standard finishes are available plus any grille can be made in matching color to blend with your decor. 202 Norman Ave., Bklyn. NY 11222. 800-521-4895. Fax: 718-349-2611.

Register & Grille Mfg., Co.

Circle 73 on Inquiry card

Sand Etched Curved Glass Lighting



G-8 Collection of pendant and ceiling fixtures explores light through graceful bell shaped etched glass. Sizes to 36" diameters, with choice of stems. Finishes in brass, chrome and bronze. Equipped for incandescent or fluorescent lamping. Matching wall sconces and table lamps complete the group. Model shown: G-8036-H with 5 stems. Call or write, catalog available: TSAO+CLS, 31 Grove St., New Canaan, CT 06840. 203-966-9550 or FAX 203-966-2335.

TSAO+CLS

Circle 74 on Inquiry card

Fine Garden Furniture



Van Klassens Fine Garden Furniture is made of solid Honduras mahogany joined with West System® epoxy and finished with AWLGRIP® marine polyurethane paint, the most attractive and durable combination of materials for wood painted furniture for indoor or outdoor locations. Also available in genuine FEQ teak, clear mahogany and custom designs and colors.

Van Klassens, Inc.

Circle 75 on Inquiry card

CHADSWORTH COLUMNS™



Color brochures feature wood, fiberglass, E.P.S. stone and marble architectural columns. Variety of sizes and styles. Round, square or octagonal with plain or fluted shafts. Job site delivery and project selection anywhere. CHADSWORTH. The Column Company. For catalog (800) [illegible] Georgia (404) 876 [illegible] brochures.

[illegible] Co., Inc.

Circle [illegible] on Inquiry card

CEDAR IMPRESSIONS™



CertainTeed Corporation now offers Cedar Impressions™, a durable polypropylene siding panel manufactured in molds patterned from real cedar shingles. Offering the authentic look of cedar perfection shingles without the maintenance worries, this 48" x 14" panel installs like a traditional siding panel and has interlocking tabs for a virtually seamless look. Call 1-800-233-8990 for more information.

CertainTeed Corporation

Circle 77 on Inquiry card

TIMES SQUARE LIGHTING



With over 60 years of experience, Times Square Lighting broadens the creative minds of the Architect with their complete line of display and track lighting fixtures. Low voltage energy saving fixtures, line voltage pars from 50 to 1000 watts, and pattern and framing projectors, can all be found in our 40 page catalog. Call (914) 947-3034 or fax (914) 947-3047 for further information.

Times Square Lighting

Circle 78 on Inquiry card

A Practical Solution to Roof Paver Stone Applications



New bulletin shows a better way to transform a roof into a patio, terrace, balcony, walkway, plaza podium, promenade, or just plain roof deck, using the Pave-El Pedestal System. Designed to elevate, level, and space paver stones for drainage in any weather, Pave-El reliability protects roof, paver stone, membrane and insulation. Ellicott Station Box 119, Buffalo NY 14205. 416-2523-2090.

Envirospec

Circle 79 on Inquiry card

Ancor Granite Tile



Ancor produces close to three dozen No. American and imported granites in a full range of colors and finishes for residential, commercial and institutional use. Standard format is 12 x 12 x 3/8"; other sizes up to 18 x 18 x 1/2" available. Ancor's honed finish tile is particularly suitable for high traffic commercial areas. 435 Port Royal West, Montreal, Quebec, H3L2C3, Canada. Ph# (514) 385-9366. Fax# (514) 382-3533.

Ancor Granite Tile

Circle 80 on inquiry card

Discover The Value In Basements



The Basement Design Guide from Koch Materials Company can help you discover new ideas in designing warm, dry, comfortable living spaces in below grade areas. This 20-page brochure highlights construction techniques and design considerations that help make the basement a value to you and your buyers. Includes information on a 10-year limited warranty against exterior foundation leaks.

Koch

Circle 81 on inquiry card

Aisle-Saver High Density Storage System



Aisle-Saver® high density mobile shelving systems save space by eliminating unnecessary aisles. Opens an aisle where you want it, when you want it. Doubles the capacity of filerooms, defers expansions and moves, reduces overheads. Utilizes existing shelving or cabinets. Brochure discusses applications, system layouts and aesthetics.
Call: 908-272-8888 or
FAX: 908-272-7081

White Office Systems

Circle 82 on inquiry card

Tough, Attractive Walls Suit School Needs



Spectra-Glaze® factory-glazed concrete masonry units get an A+ from educational building designers, for new and renovative interior and exterior walls. Tough, sanitary, easy cleaning, no refurbishing. Ideal in high traffic, high activity areas. Aesthetically pleasant custom colors. Sound absorbing modules; integrally engraved signage and murals. The economy of block, the permanence of glaze. 800/638-3188; 410/837-0720; FAX 410/837-9498.

The Burns & Russell Co.

Circle 83 on inquiry card

Worthington Group



Introducing the Classical Tuscan Column, based on designs of Vitruvius and Vignolo; and crafted in pine. Our large volume allows us to offer these authentic replications of classical designs at a price far more reasonable than other companies. Worthington also offers fiberglass balustrading, plaster moulding and much more. Shipped factory direct. 44 page color catalog $3.00. Call (800) 872-1608.

Worthington Group

Circle 84 on inquiry card

Concrete Waterproofing by Crystallization



Applied as a slurry coating, Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that 'plugs' the pores of the structure preventing water seepage. Xypex is ideal for use on the 'inside' of wet underground structures.

Xypex Chemical Co.

Circle 85 on inquiry card

Open & Private Offices A Single Source



Transwall combines these two basic wall requirements for today's high tech office with its Soundivider open plan system and the full height Corporate series. The two systems offer complete interchange-ability of wall mount components, as well as compatibility in design and appearance. Modular furniture blends with panel mounted work surfaces. Electrical and electronic support is system integrated.

Transwall Corp.

Circle 86 on inquiry card

Rigid Vinyl Drywall Accessories



Trim-Tex, Inc. manufacturer and extruder of rigid vinyl drywall accessories for over 25 years, provides this full line of superior quality rigid vinyl drywall accessories to help you create "DRYWALL ART." With over 65 different designs in over 275 sizes and colors, Trim-Tex products can make your imagination a reality. Call 1-800-874-2333 to receive our 20 page 4-color catalog.

Trim-Tex, Inc.

Circle 87 on inquiry card

Product Literature Showcase

The Future of Cedar Shingle Siding

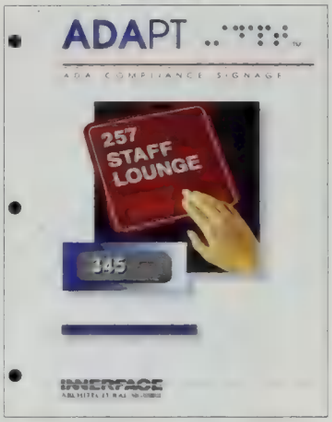


Cedar Valley's new 8-page color brochure details the panelized exterior siding system. Included are specifications, product descriptions & illustrations, finishing & application information and nearly four pages of color photos of significant projects by leading architects throughout the U.S. who used conventional & Decorator shingle panels. Cedar Valley. Call: 800-521-9523. Fax: 408-636-9035.

Cedar Valley Shingle Systems

Circle 88 on Inquiry card

ADA Compliance Signage

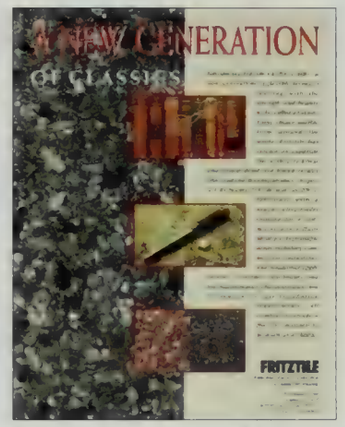


INNERFACE makes it easier for you to meet the new Americans With Disabilities Act (ADA) signage standards. INNERFACE offers (1) A variety of compliance signage, (2) National distribution, (3) Solid 21 year history and (4) Economical, attractive, & highly functional interior and exterior signage. INNERFACE also offers a complete line of interior and exterior signage. For free literature Please call: (800) 445-4796.

INNERFACE

Circle 89 on Inquiry card

Classic Series Flooring Fritztile

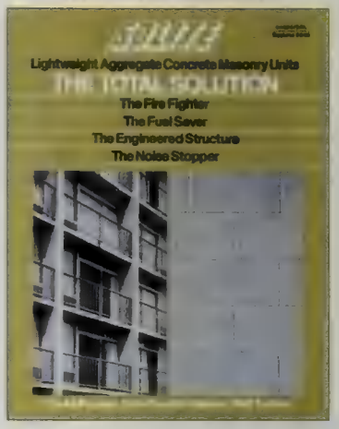


Fritztile introduces "A New Generation of Classics" with its Classic 200 & 600 Series flexible terrazzo floor tile. Accented with imported and domestic marble this dynamic flooring is available in a range of colors from pastels to earthtones. Exceptionally wear and stain resistant, Fritztile is perfect for commercial, institutional and residential applications - anywhere beauty and durability are important. 1-800-955-1323.

Fritztile

Circle 90 on Inquiry card

SOLITE® Masonry Units The Total Solution

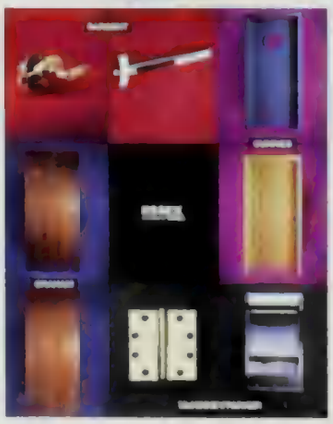


SOLITE® lightweight aggregate concrete masonry units provide the total solution for your building needs. 8-page brochure features multi-function wall system of concrete masonry units composed of rotary kiln produced aggregate. Fire resistance - up to 4 hr. rating. High insulative values save fuel. High resistance to sound transmission provides maximum privacy. Brochure also explores the benefits of an engineered masonry structure. P.O. Box 27211, Richmond, VA 23261 Call:(804) 329-8135.

SOLITE Corp.

Circle 91 on Inquiry card

Total Opening Systems



Absolutely everything you need to finish an opening securely in the widest variety of materials is explained in detail in this comprehensive catalog from ESSEX Industries. SARGENT architectural hardware, CURRIES hollow metal doors & frames, GRAHAM wooden doors, MCKINNEY [illegible] and MCKINNEY Parker [illegible] accessories come together in this comprehen- [illegible] work from the [illegible] of total [illegible]

[illegible]

[illegible]

[illegible]

KROY ADA SIGNAGE

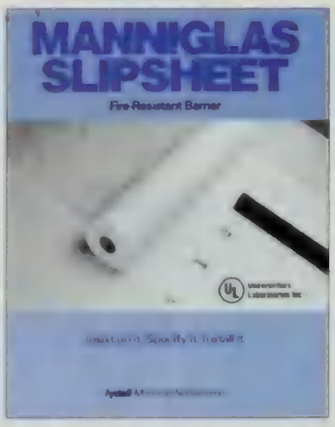


For more than a decade, Kroy Sign Systems has been working with architects and designers to specify professional, cost-effective signage. Let us worry about ADA signage compliance for your next project while you concentrate on the rest. Whether you're bringing a facility up to code, renovating, or designing for new construction, it's imperative to know how to comply - before you begin. Call 800-733-5769 or Fax 602-951-7033.

Kroy, Inc.

Circle 93 on Inquiry card

Manniglas Slipsheet ® Fire Resistant Barrier



Roofing system brochure highlights company's new Manniglas 1208 Slipsheet and popular Manniglas 1200 Series Slipsheet for UL Class A & B single-ply roofing systems. A cost-effective alternative to gypsum board, Manniglas Slipsheet is a lightweight easy-to-apply flame barrier rolled out over both combustible and non-combustible roof decks to prevent penetration and spread of flame in both re-roofing and new construction applications. Call 518-273-6320.

Lydall Manning Nonwovens

Circle 94 on Inquiry card

Custom Decorated Metal



SURFACE DESIGN + TECH. offers entirely new dimensions in sheet metal decoration. Restructuring the appearance of polished, mat or brushed surfaces, more than 30 material + finish options can be used in limitless design combinations. And what is better: you can specify your own design, pattern, logo, texture, etc.., SURFACE DESIGN will produce it. Call: 1-800-537-1127, FAX: (305) 696-4064.

Surface Design + Tech.

Circle 95 on Inquiry card

Ascend In Style

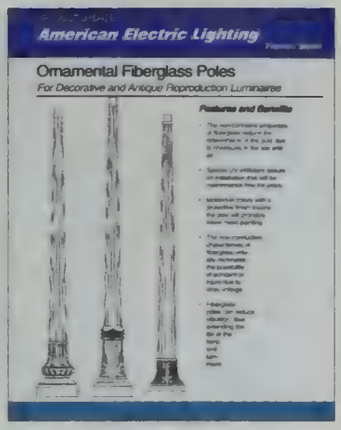


The standard "Princeton double helix spiral stair (no center pole) rotates 180 degrees, however custom degrees of rotation can be manufactured. Shown is a 315 degree white oak stair. Wide selection of rail and baluster styles, as well as wood species. Family owned, quality is an A.J. Stairs commitment. Call for FREE estimate and color brochure.

A.J. Stairs, Inc.

Circle 96 on Inquiry card

Ornamental Fiberglass Light Poles



Thomas & Betts announces the addition of a new series of decorative antique poles to it's American Electric Lighting product line. These three new poles: the Washington, the Kaiser, and the Tudor are available individually or as a package with the American Electric Lighting decorative fixtures: the Bainbridge and the Athens.

American Electric Lighting

Circle 97 on Inquiry card

Integrated Architectural Ornaments



Pineapple Grove Designs' offers an extensive collection of original SculpStone™ architectural ornaments. Created in engineered stone, our detailed medallions, friezes & keystones range from classic & traditional to contemporary styles. Easily applied & exceptionally durable, these ornaments come in a variety of colors, sizes & shapes. All are precision made to our exacting standards & are of uniformly high quality. Call 800-771-4595.

Pineapple Grove Designs

Circle 98 on Inquiry card

NEW VELCAD SOFTWARE



VELUX introduces the first design software created exclusively for roof windows & skylights. Designed in Microsoft Windows™ 3.0 & operable within or out of AutoCAD®, VELCAD accommodates two levels of user experience & can generate & receive .DXF files. VELCAD users can print detail drawings & specs &, interfacing with AutoCAD, can manipulate elevations, drawings and schedules. Contains a drawing viewer for printing & viewing head, jamb & sill designs. Available free-of-charge to design professionals.

Velux-America, Inc.

Circle 99 on Inquiry card

New Commercial Catalog



Marvin Windows' new commercial catalog describes the commercial capabilities of Marvin's entire line of wood and clad wood windows and doors. The catalog provides information on product styles, performance and design capabilities, as well as Marvin's Architectural Support Department and other non-residential services.

Marvin Windows

Circle 100 on Inquiry card

Bomanite Architectural Concrete Paving



Bomanite colored, imprinted and textured architectural concrete paving adds a distinctive touch to any municipal, commercial or residential project. Bomanite has the durability to stand up to the toughest traffic loads and environmental conditions. Available in more than 50 patterns in 25 standard colors. Custom colors also available. 209-673-2411

Bomanite Corporation

Circle 101 on Inquiry card

New Nylon Railing



W&W is proud to announce its *exclusive* representation of NT Normbau Nylon Railing and Balustrade Systems throughout the US, Canada and Mexico. This new and improved nylon product has removed all cadmium and features a stabilizer that has been added to the nylon, significantly increasing its resistance to UV light. Several new and exciting colors have also been introduced.

W&W Sales Ltd.

Circle 102 on Inquiry card

Antique Plank Flooring from recycled barnwood



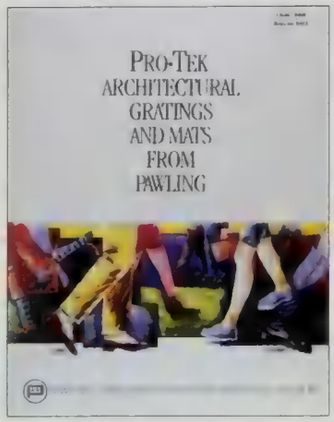
Our planks are naturally Distressed by Mother Nature, Aged by Father Time™ and can be used for flooring, panelling or millwork. From old barnwood emerges a pricision-milled plank that retains the patina and character imparted by decades of wind , rain and sun, and the signs of old-time craftsman. Free brochure.

Aged Woods®

Circle 103 on Inquiry card

Product Literature Showcase

Pro-Tek® Entrance Mat & Grating Systems Catalog

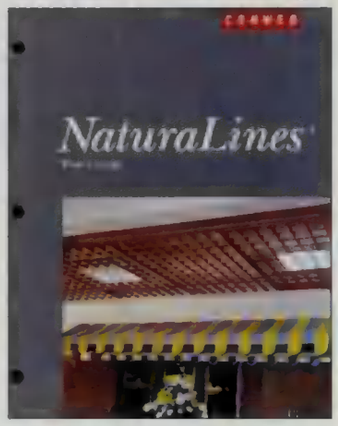


The new PRO-TEK® Entrance Mat & Grating catalog describes the PAWLING "TWO-STEP" scape and dry system. Features products:patented ROL-DEK® recessed/surface mats & DRAIN-WELL® recessed grating systems. When installed in busy commercial entrances, these premier systems provide first defense protection of interior rugs, carpeting & flooring from heavy pedestrian traffic. They also provide easy, cost effective maintenance & complement contemporary interior design.

Pawling Corporation

Circle 104 on Inquiry card

Conwed NaturaLines™ Decorative Wood Ceilings



NaturaLines wood ceilings are available from Conwed in numerous styles and finishes. Wood ceilings feature dynamic lines for such environments as hotels, banks, offices, reception areas, and schools. Styles include linear, louver, cellular, and coffer in woods such as oak, hemlock, maple, or custom wood. NaturaLines wood ceilings are available in fruitwood, walnut, mahogany, and custom stains or choose from finishes such as lacquer or class A.

Conwwed Designscape

Circle 105 on Inquiry card

Increte Systems Decorative Concrete Stamped in-Place



The most complete & versatile Decorative Stamped Concrete system in the world. "Second Only to Nature". Over 30 standard colors & 55 different natural patterns. Custom colors & patterns created to meet the design requirements of any commercial, residential, indoor or outdoor applications. Increte Systems can color & texture to resemble natural stone, slate or bricks. Increases surface strength to 8,000 PSI. Mildew & stain-resistant surface is ideal for roads, driveways, patios, pool decks, medians, bridges, park paths, & entrances. Free 12 page brochure call 800-752-4626.

Increte Systems

Circle 106 on Inquiry card

New Product Catalog



Vinyl Corp. manufactures the most extensive line of over 450 quality wall and ceiling accessories for stucco, plaster, EIFS, DEFS veneer and drywall. All accessories are exclusively manufactured with BF Goodrich Geon® Vinyl compounds. For more information call (800) 648-4695 and ask for Vinyl Corp's. new product catalog. VINYL CORP. 8255 NW 70th Street, Miami, FL 33166.

Vinyl Corporation

Circle 107 on Inquiry card

TAB-PD 15 Cabinets from TAB®



TAB Designer Series™ Cabinets allow you to plan according to specific storage needs. Available pre-configured or as shells, accepting a wide variety of interchangeable components to create the ideal [illegible] storage system. With 12 heights, 3 widths, 2 depths, a full range of designer colors and optional woodtrim, beautifully finished to harmonize with [illegible]. Call 1-[illegible] 4432 or [illegible]

[illegible] 5

[illegible] card

SENERGY CAD-NET SOFTWARE



Architects can cut hours to minutes when designing exterior walls with Senergy's CAD-NET, a new AutoCAD - compatible (V.11 and higher) specification & detail drawing program for Exterior insulation & Finish Systems (EIFS). The CAD-NET program provides specifications & deatils for Senergy's Senerflex, Senerthik & QRsystem. CAD-NET is available on either 3-1/2" or 5-1/4" diskettes. **For more information: Senergy 1-800-221-WALL. Leaders in EIFS.**

Senergy

Circle 109 on Inquiry card

Architecture In Glass

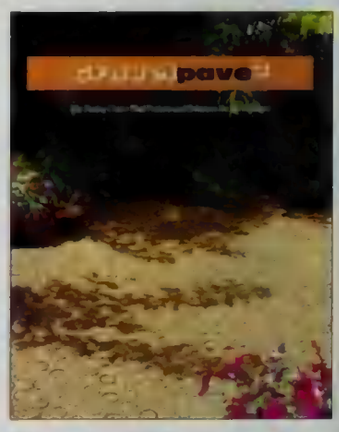


Amdega-Machin Conservatories' new architectural handbook is now available. The handbook sets out the general design principles of the two conservatory systems produced by Amdega. The Amdega line has established a reputation for making the finest traditional style conservatories since 1874. The Machin line is reminiscent of the graceful & romantic structures of previous centuries.

Amdega-Machin Conservatories

Circle 110 on Inquiry card

Gravelpave2 Porous Pavement System



Gravelpave2 is a sister product to Grasspave2 and offers stabilization and confinement of gravel for a high traffic pavement surface - which still needs all benefits of porous pavement. Available in Brown, Gray, or Black as standard colors, or custom to match gravel. Free brochure: call 800-233-1510, or fax 800-233-1522.

Invisible Structures, Inc.

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Back Issues of Record Lighting

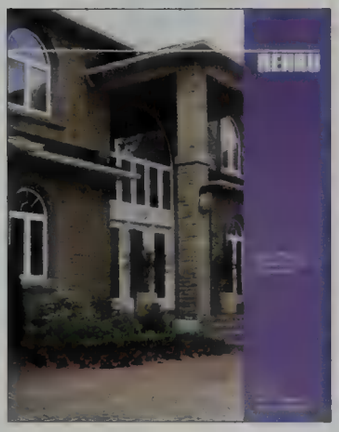


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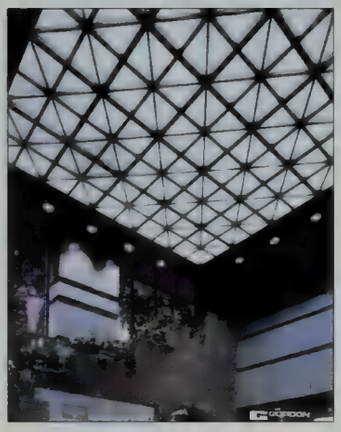


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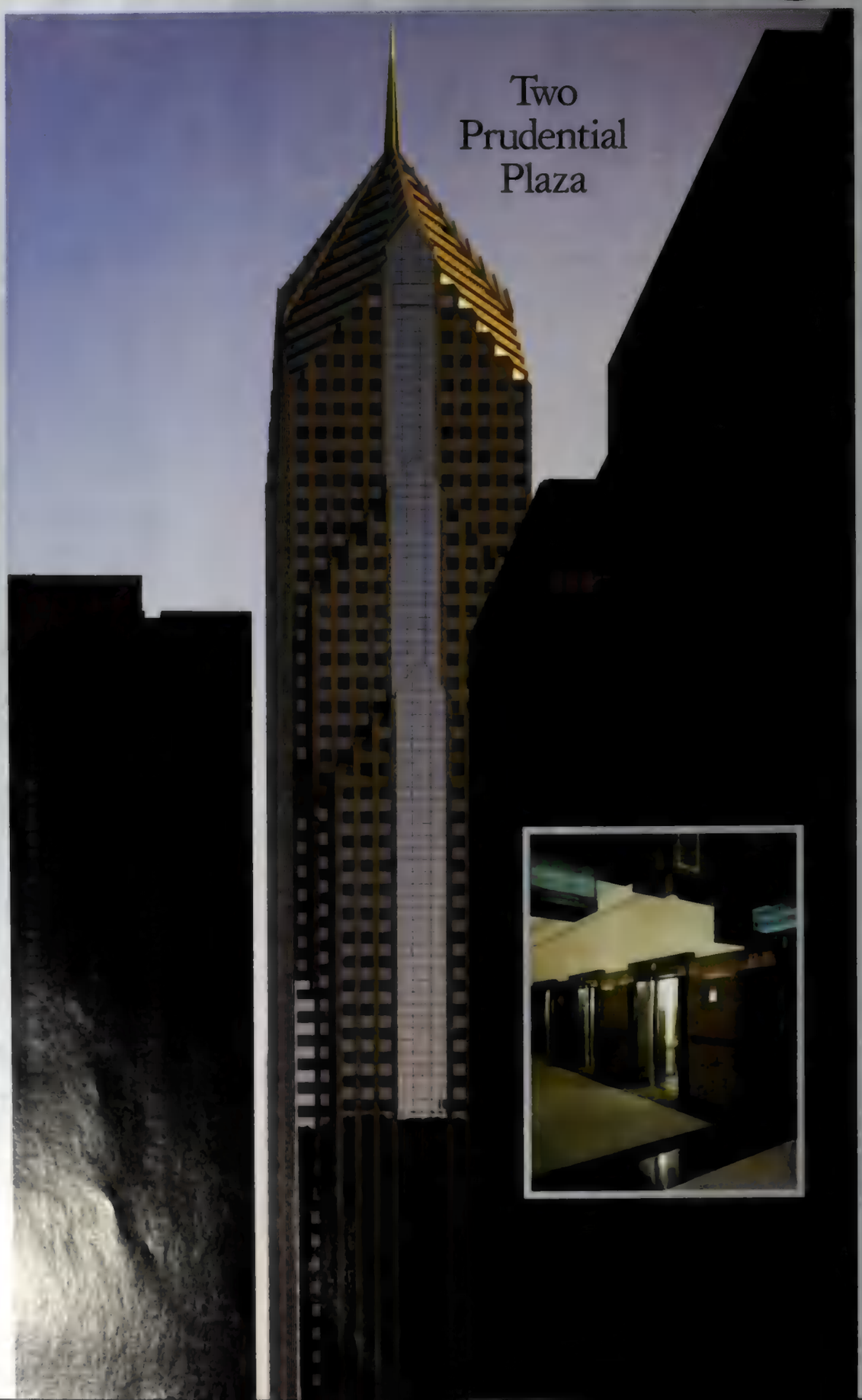


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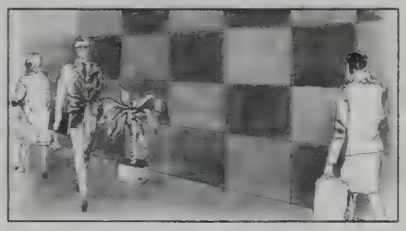


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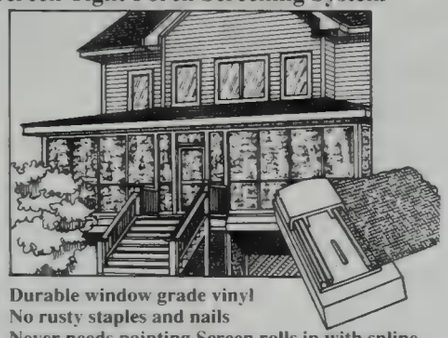
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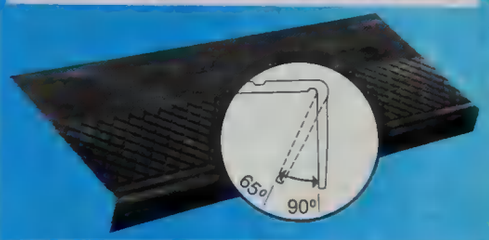
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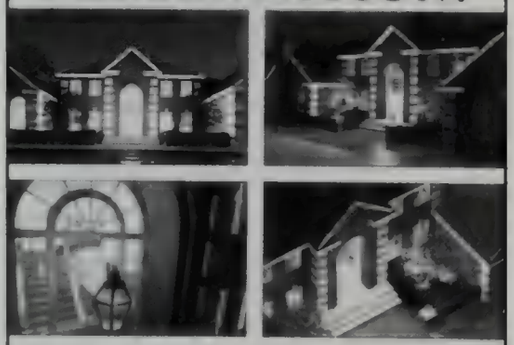
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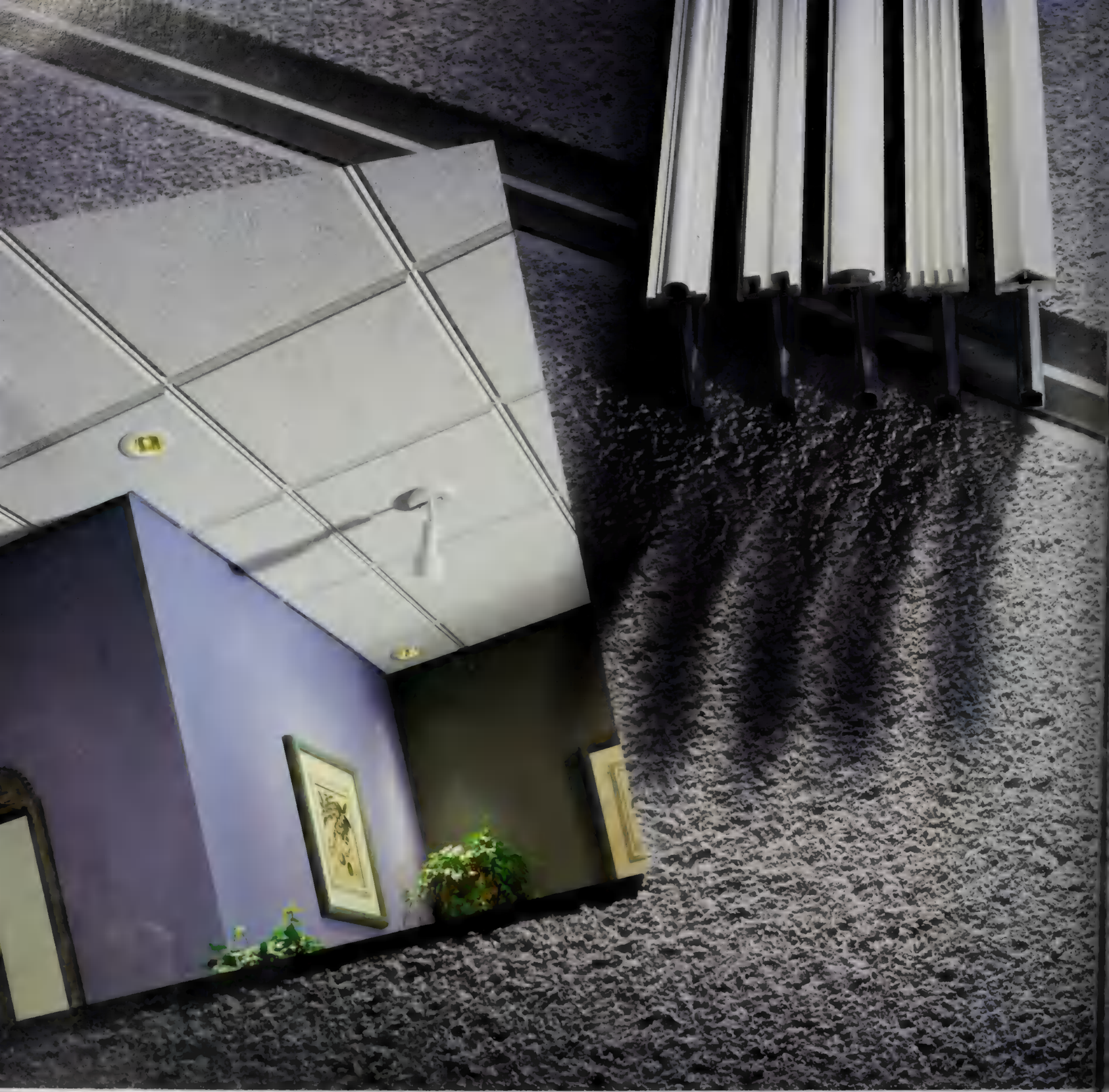
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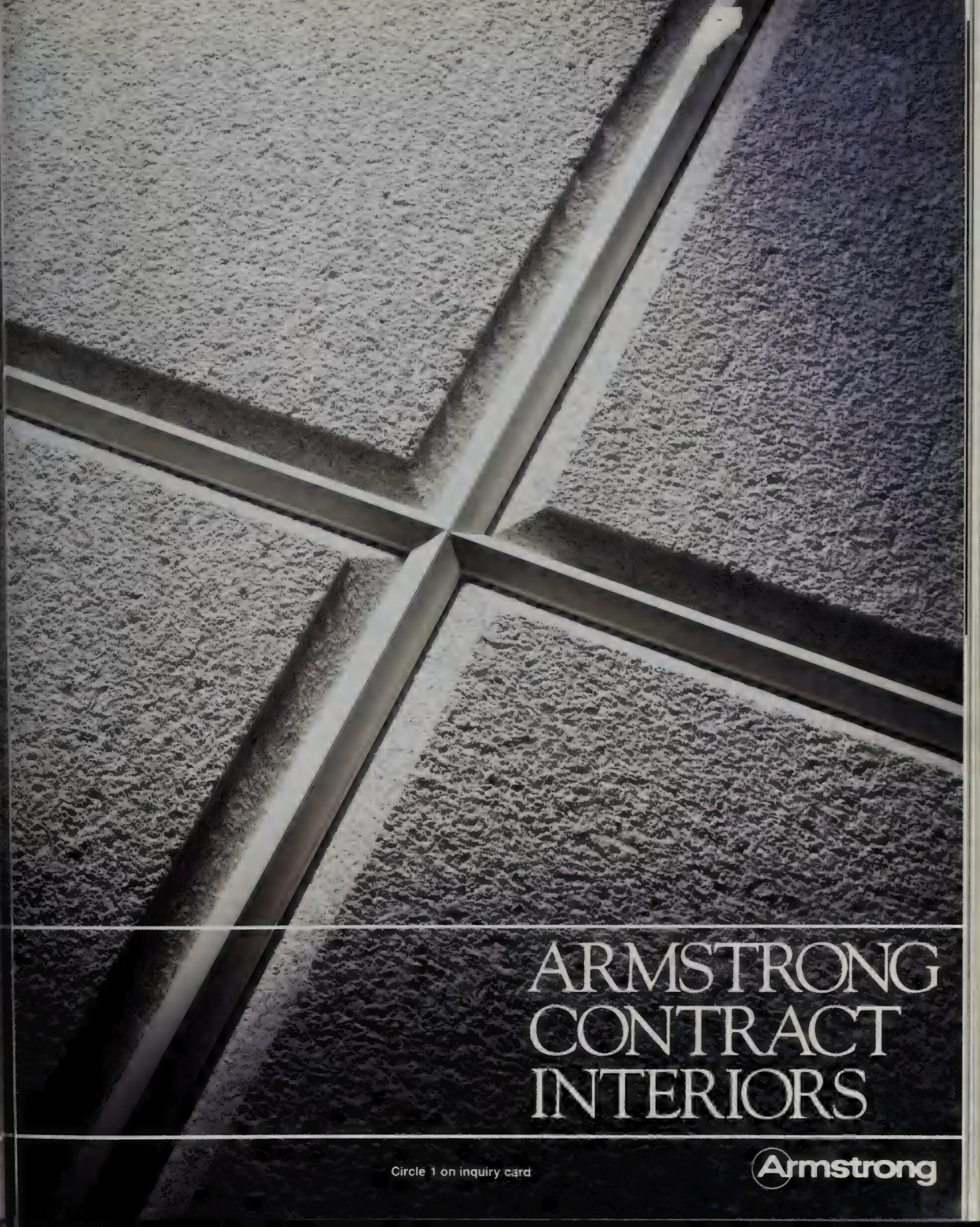


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Letters

AIA Gold Medal

Your editorial on the AIA Gold Medal has moved me to respond concerning one of my favorite subjects. [RECORD, August 1993, page 9]. I have now participated in five Gold Medal elections since joining the national AIA Board in 1987—an experience which has given me an almost religious fascination about that enigma known as the AIA Gold Medal for Architecture.

To understand the AIA Gold Medal, one needs to recognize that the making of architecture is unavoidably a collaborative effort. No Gold Medal winner has ever been a truly solo act: Not Pei, not Jefferson—not even Wright. Clients, craftsmen, draftsmen—even lawyers (curse the thought...) contribute to one extent or another to the end product.

At the soul of this collaborative effort, however, is the indispensable contribution of the spirit of the individual, and it is this special spirit that the Gold Medal celebrates. It is not an award for the architecture the Medal winner helped produce, nor the collaborative team she or he has assembled, but rather it focuses exclusively on the special spirit the Gold Medal winner has brought to architecture, and that is why the awarding of the Gold Medal to a team or collaboration would be so completely inappropriate. While I may disagree with you on the criteria for the Gold Medal, I fully concur with you that the AIA Firm award, which honors collaboration in architecture, deserves every bit as much recognition as the Gold Medal.

[illegible] AIA [illegible] considered by the AIA Board.

There is, however, an equally important issue which was not mentioned in your article worth careful consideration by the Board if the stature of the Gold Medal is to be restored. AIA's Gold Medal has become an American award. It fails to capture worldwide respect and recognition due to a nominating process whereby distinguished foreign architects rarely even surface as candidates.

Without diminishing the credentials of recent Gold Medalists, consider the contributions of such architects as Maki, Stirling, Piano, Hollein, Rogers, Legoretta and Foster, to name just a few.

The debate to which you refer in your editorial over whether Venturi and Scott Brown should jointly be awarded the Gold Medal seems of little consequence by comparison to the consideration of the lack of world-class candidates for this award.

Until the AIA addresses this most fundamental issue and corrects it, the Gold Medal will never enjoy the global stature intended.
Donald J. Hackl, Architect
Loebl Schlossman and Hackl
Chicago, Ill.

Salk Addition Opposed

"Delay Tactic?" "Obscure Clause?" "Addition replaces a eucalyptus grove?" [RECORD, August 1993, page 6]. The author of this unfortunate piece has been fooled by a wolf in sheep's clothing. To set the record straight: Hundreds of millions of our tax dollars have been given to an institution that is carelessly ruining one of our country's greatest 20th century masterpieces. The National Historic Preservation Act Section 106

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Calendar

October 4-October 31
"The Art of Architecture: Works by Laureates of the Pritzker Architectural Prize," Museum of Art, Washington State University, Pullman, Wash. Call 509/335-1910.

October 4-December 3
AIA/LA Design Awards, Pacific Design Center, Los Angeles, Calif. Call 310/657-0800.

October 6-7
Design New York '93 show for interior designers, D&D Building. 979 Third Ave., New York City. Call 212/751-5110.

October 14-17
"Lighting for the Broadway Theatre" seminar, John Jay College auditorium, 809 Tenth Ave., New York City. Call 212/645-4977 for details.

October 18-20
1993 Virtual Reality and Teleoperation Conference and Exhibition, Macklowe Hotel and Convention Center, New York City. Call 718/875-5100.

October 20-22
InterGlassMetal/Fenestration World '93, Georgia World Congress Center, Atlanta, Ga. Call 800/843-3263 or 617/482-3596.

October 23
"A New Design Ethic: Rethinking Urban Habitiats for a Sustainable Society," Fashion Institute of Technology, New York City. Call 914/424-3549.

October 25-27
"Future/Build '93," Intelligent Buildings Institute Foundation, Chicago, Ill. Call 202/457-1988.

October 27-28
"Integrated Officing '93" program at IDCNY, Long Island City, N. Y. sponsored by IFMA and IDCNY. Call 718/937-7474 or 212/593-3450 for details.

November 18-21
Sixth Symposium on Healthcare Design, Chicago Marriott, Chicago. Contact National Symposium on Healthcare Design,

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ARCHITECTURAL RECORD

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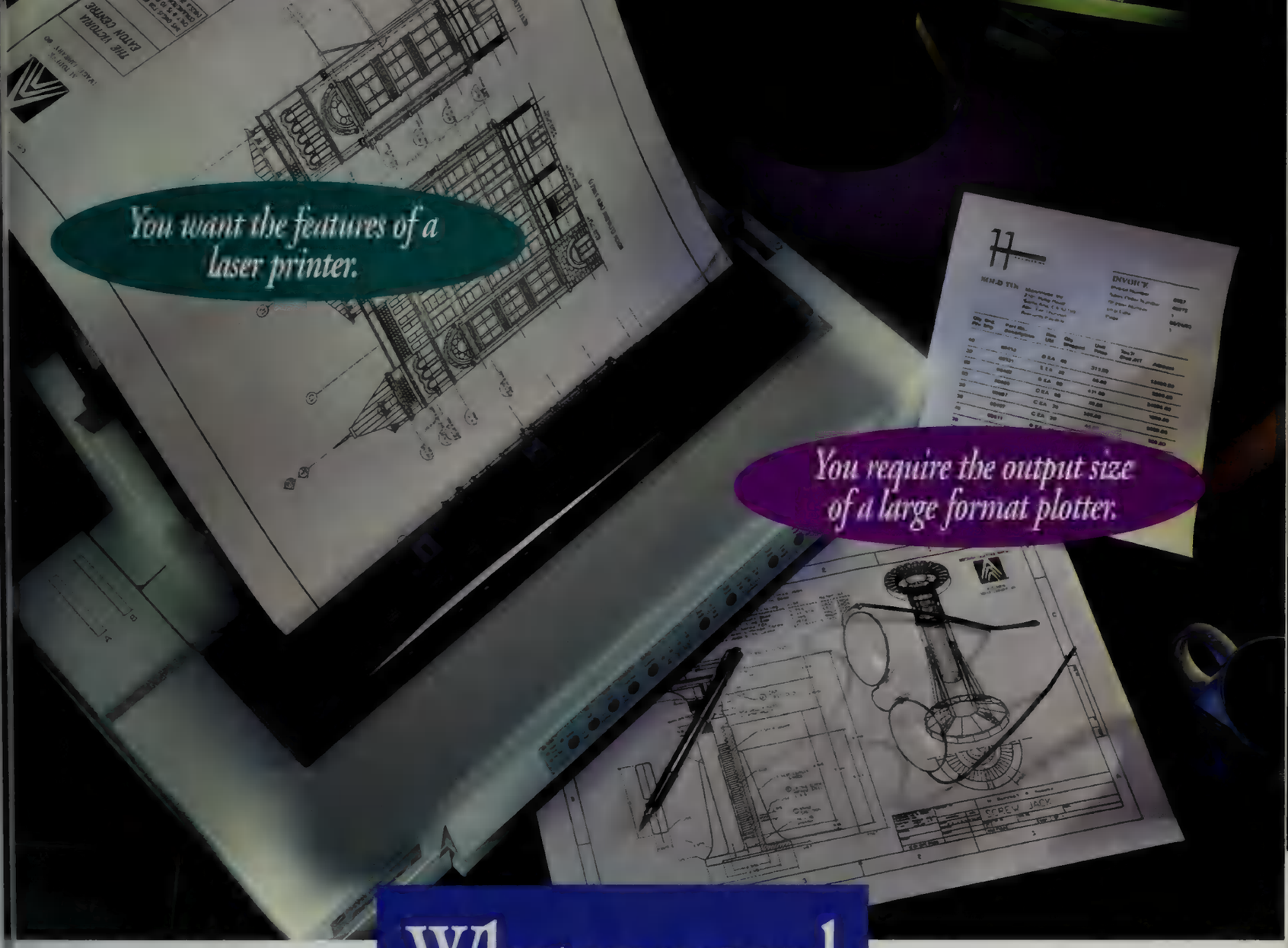
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ARCHITECTURAL RECORD (ISSN0003-858X/93) published monthly by McGraw-Hill, Inc. Second class postage paid at New York NY and additional mailing offices. Postage paid at Montreal, Quebec, Canada. Canada Post International Publications Mail Product Sales Agreement No. 246565. Registered for GST as McGraw-Hill, Inc. GST Number R123075673

Postmaster: Please send address changes to: ARCHITECTURAL RECORD, Att: Fulfillment Manager, P. O. Box 566, Hightstown, NJ 08520. This issue is published in national and separate editions numbered or allowed for as follows: Western Section 49W.



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PACIFIC DATA PRODUCTS

Continued from page 4
review was written to protect our architectural heritage and to help insure that sensitivity and good sense are used when projects like the Salk addition are planned. This is not a delay tactic—it is an effort to stop the addition project.

Lastly, the addition is not replacing a eucalyptus grove—it is destroying an integral part of the Salk Institute design, and is therefore seriously degrading the architectural integrity of one of Kahn's greatest works. Salk Institute officials have been led to believe that they will be preserving the Salk as long as they do not physically touch the Kahn buildings. This perception is terribly misguided. Our profession must wake up and start to help preservation organizations protect not just our important older buildings, but our important Modern buildings as well.
Stuart Emmons, Architect
Louis I. Kahn
Preservation Group
Los Angeles, Calif.

Flights of Fancy
Being an environmental planner rather than an architect, I tend to view architects and their work with some detachment and as the user rather than the designer. I recall the frequent comment heard in Britain, especially during the '60s and '70s, that architects designed mass housing which they themselves would never contemplate living in. I got somewhat the same feeling when I studied the new airport building [RECORD, August 1993, page ... and the follow-up comment in ... section of the ... issue ("Architects ... Capture ... Flight").

... tempted to make "grand statements" in any field; in the specific case of airport design, a further important influence is, that the overall concept is created in the relative calm of the architects' air-conditioned offices by people who have come in fresh from a good night's sleep, a shower, and a glass of fruit juice. Not so, unfortunately, the traveler for whom they design the facility. In the architect's relaxed environment the "romance of flight" may seem an appropriate theme; in the real world a conscious attempt to minimize hassle and to reduce fatigue and tension would more accurately reflect the needs of actual travelers. Architects should try jotting down some notes and sketches on the back of an envelope while sitting in some anonymous hub airport lounge after a ten-hour flight from Europe, waiting two hours for a delayed connecting flight in crumpled, slept-in clothing, the ears regularly assailed by repetitive announcements.

Perhaps the mind might stray nostalgically to the "old days" when airports were small and friendly. Why not re-create such conditions? Build a small airport unit, just the right size for comfort. Arrivals on the first floor, departures on the second. A serious attempt should be made by everyone concerned, from check-in to airlines to baggage return, to minimize airport waiting time; but for those who must wait, often for several hours, the third floor lounge should make it a pleasant and relaxing experience.

On the top floor: hotel rooms—neat compact rooms with bed, table, chair, hanging space, a phone, and an easy-to-setup alarm. These small, self-contained individual airport units can then be replicated in a continuing line to provide as much capacity as required for the total airport complex.
Michael Meacock
Victoria, B.C., Canada

Linking Fees and Liability
"Architect's Fees: Arresting the Downward Spiral" [RECORD, July 1993, page 28] was an excellent summation of the inequities facing today's architect. Of particular interest was the repeated mention by surveyed architects of the huge liability architects must assume for a low fee.

Mentioning limitation of liability (LoL) as a potential solution to this problem was right on target. If clients insist on limiting architectural fees, often by excluding construction observation services from an architect's scope of services, then the architect should demand that his or her liability be contractually limited as well. It is simply unfair that an architect be required to assume full responsibility for design errors and omissions when he or she receives only a fraction of the project's reward and has no control over how those designs are carried out.
Peter B. Hawes
Monterey, Calif.

Making Design Pay
I read your July editorial [page 9] with great pleasure. If architects cannot design in such a way that their service contributes to what the owner wants to accomplish with an enterprise, then it is no wonder that the public does not have a more advanced appreciation of design, and so much of our environment is created by "non-design professionals."
Wayne Ruga, Architect
National Symposium on Healthcare Design
Martinez, Calif.

Continued from page 4
4550 Alhambra Way, Martinez, Calif. 94553-4406; 510/370-0345.

December 6-8
Restoration '93, an international exhibition of products and services on building restoration. Hynes Convention Center, Boston. Call Ellen Glew, 617/933-9699; fax, 617/933-8744.

Competitions
- 1993 Society of American Registered Architects Student Design Competition. Deadline: October 1. Call 312/763-5767.
- The University of Maryland at College Park is accepting statements of qualifications to design the Maryland Center for the Performing Arts. Deadline: Early October. Call 301/405-4621.
- National Lighting Awards Program. Deadline for entries: October 15. Contact National Lighting Bureau at 202/457-8437 for entry form and rules.
- The Construction Specifications Institute 1994 Specifications Competition for firms preparing project manuals for construction. Submit application and project manuals by November 2. Call CSI at 703/684-0300.
- Designers and Planners for Social Responsibility, Virginia Chapter, in conjunction with Habitat for Humanity of Greater Richmond, is accepting entries to construct a model home with material costs not to exceed $35,000. Deadline: November 9. Call 804/780-0070.
- American Academy in Rome competition for the 1994/95 Rome Prize fellowships in the fields of architecture, interior design, urban design, urban planning, and landscape architecture. Deadline for entries: November 15. Applications available by writing Fellowships Coordinator, 667 Madison Avenue, Fifth Floor, New York City 10021, or calling 212/751-7200. ■

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4. McCORMICK SPICE CORP Design, fabrication and installation, atrium dome. Gaudreau Inc. Architect

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The New Client
Special feature examines dramatic changes in the make up and functioning of the architect's client. Articles take up trends in architect selection, fees, project management, design/build, and the role of the client's architect.

Building Types Study 711 Community Facilities
Features Riverbank State Park, New York City, by Richard Dattner and Millrace Park, Columbus, Indiana, by Stanley Saitowitz

Also in November:
Buildings by Kallmann, McKinnell and Wood, Tod Williams Billie Tsien & Associates, Juha Leiviskä, Cannon/PTN

Construction Forecast 1994

Pacific Aerial Surveys



For sale or lease: military base, Alameda, Calif., 1,522 acres, spectacular views of S. F. Bay. Great potential for civilian uses. Extensive renovation and toxic cleanup necessary. Patience with government bureaucracy helpful. (Building Types Study: Military Base Conversions..Page 96.)

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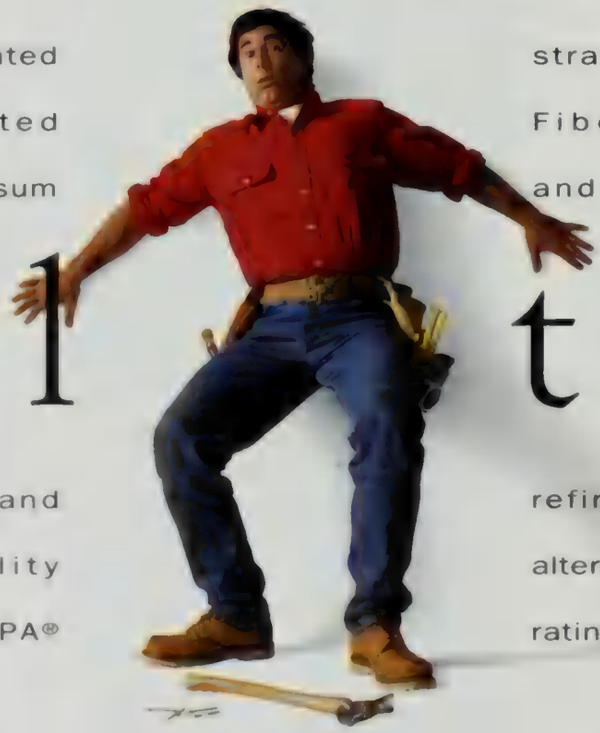
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Don't Send Horses Down the Information Superhighway

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Architects should look kindly on the proposed $400-billion fiber-optic network, better known as the Electronic Data Superhighway. Designed to replace the current system with fiber-optic wiring yielding transmission at 1,000 times today's speed and offering virtually limitless capacity, the network is intended to link the nation's workplaces, schools, and homes to a huge variety of information services that are impractical on today's digital system. Building codes and zoning ordinances in any jurisdiction in the world; seismic, structural, mechanical, acoustic, lighting, energy-conserving and other data; product-selection information in expert-system formats; encyclopedic information on past projects—all could be accessed. "Virtual" architectural offices with branches 5,000 miles apart could function efficiently. Architecture schools on five continents could hold simultaneous sketch problems and conduct concurrent crits and judgings on electronic "pinup" displays.

It's easy in the euphoria of such electronic marvels to lose sight of some basic issues, however. Who, for instance, is going to gather, screen, edit, format, package, price, store, review, update and "sunset" this cornucopia? Who will identify the architect's real needs? In what formats are text, drawings, and other images to be presented? How accessible or user-friendly will the information be?

These are some of the dangers in letting the quality of the information lag behind the technology. These dangers are already a flaw in many existing dissemination channels. The frustrations will be a thousand times greater with the enormous capacity of the new superhighway.

As the profession learns more about the physical potential of the proposed superhighways, practitioners, whether in private practice, on corporate or government staffs, or teachers, must begin to identify precisely their own information needs and objectives, and find ways to make them known to the sources they currently look to for their information.

If not, the profession will face, not for the first time, the phenomenon of a technology in search of a use. The information that begins to zip down the electronic highways must be at the same high level as its medium. Let's not use the superhighway to send horses.

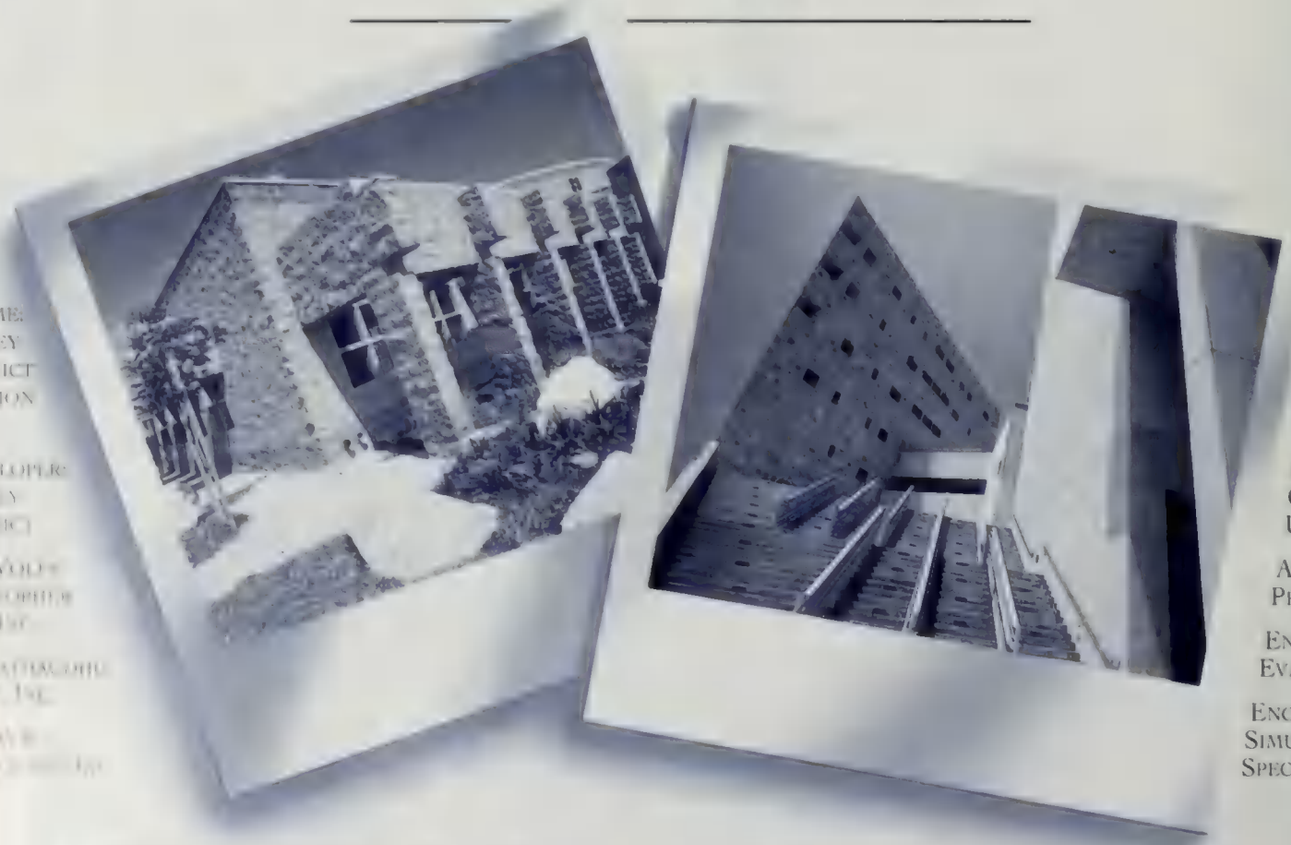
Military Makeovers

One of my most agreeable tasks in years has been to look over the shoulder of RECORD associate editor Cliff Pearson as he shepherded this month's special feature on the pending closing of some 150 military bases, pointing out the solid opportunities this offers to architects to become engaged in the planning, rehabilitation, new construction, and environmental and other services that these closings entail. Not only are the closings one physical expression of the end of the Cold War; they are also a challenge to architects to make over the land and the buildings into a true expression of America in the 1990s—its values, hopes, and dreams.

In challenging four architects to replan the site and buildings at Oakland's Alameda Naval Air Station (see pages 96 to 107), RECORD has sought to highlight some of these opportunities. Others will emerge as more and more bases switch roles from preparation for war to exploiting the peace. *Stephen A. Kliment*

DESIGN FOR EXCELLENCE

AND THE WINNERS ARE:



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WATER DISTRICT
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FACILITY

OWNER/DEVELOPER:
VICTOR VALLEY
WATER DISTRICT

ARCHITECT: WOLFE
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PROJECT NAME:
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AT CALIFORNIA
STATE POLYTECHN
UNIVERSITY, POMO

OWNER/DEVELOPEI
CALIFORNIA STATE
UNIVERSITY

ARCHITECT: ANTOINE
PREDOCK ARCHITECT

ENGINEER: TIMMERMA
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OWNER/DEVELOPER:
IRVINE RANCH WATER DISTRICT

ARCHITECT: LPA, INC.

ENGINEER:
TSUCHIYAMA & KAINO

ENGINEER: R.E. WALL & ASSOCIATES

CONSULTANT:
DIKE PARTNERSHIP, INC.

PROJECT NAME:
VERIFONE WORLDWIDE DISTRIBUTION CENTER

OWNER/DEVELOPER:
VERIFONE

ARCHITECT: CROXTON COLLABORATIVE

ARCHITECT: ROBERT BORDERS & ASSOCIATES

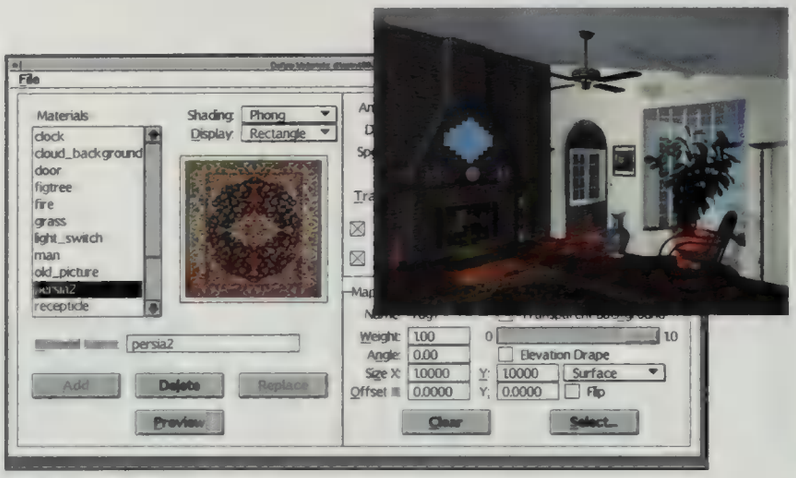
ENGINEER: NEWCOMB ANDERSON ASSOCIATES

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◆ E N E R G Y

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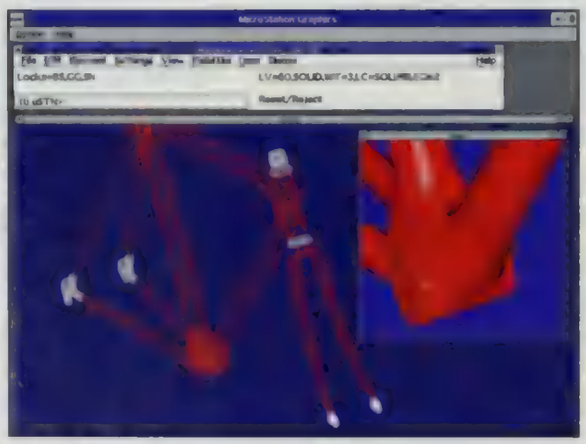


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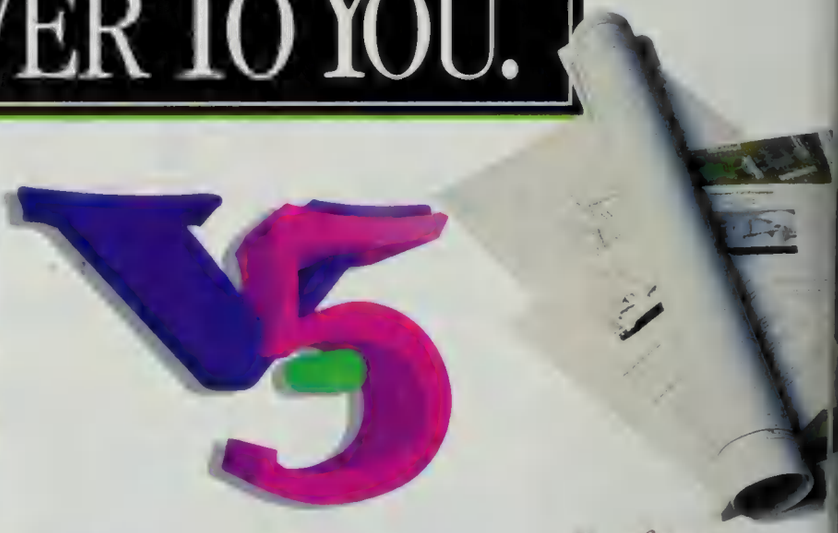


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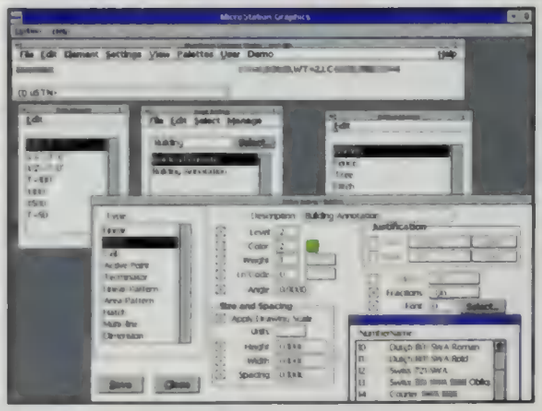
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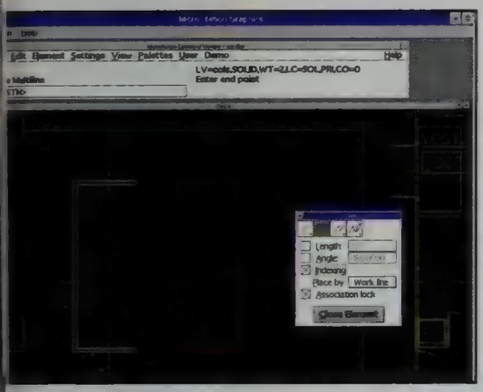
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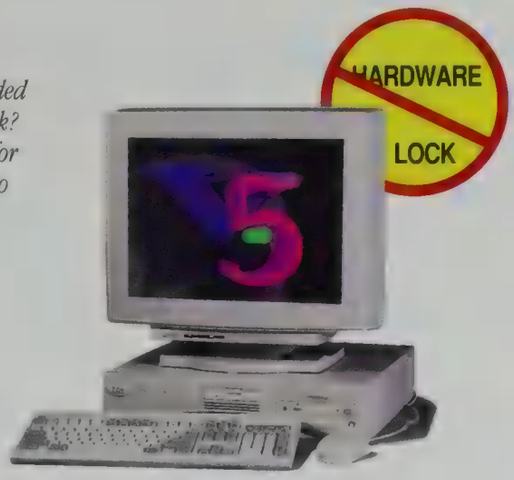
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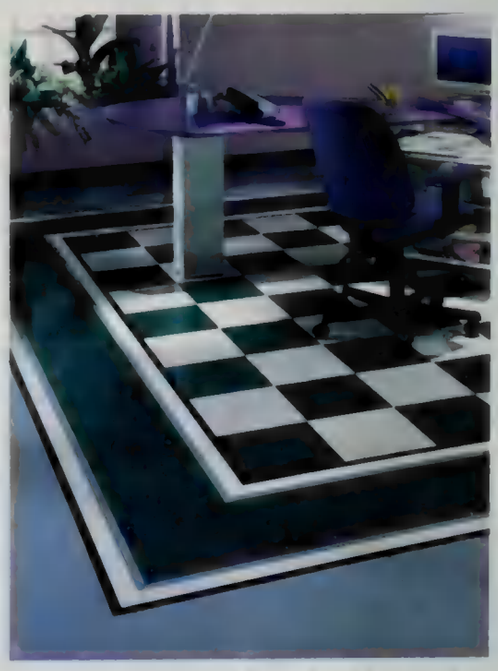
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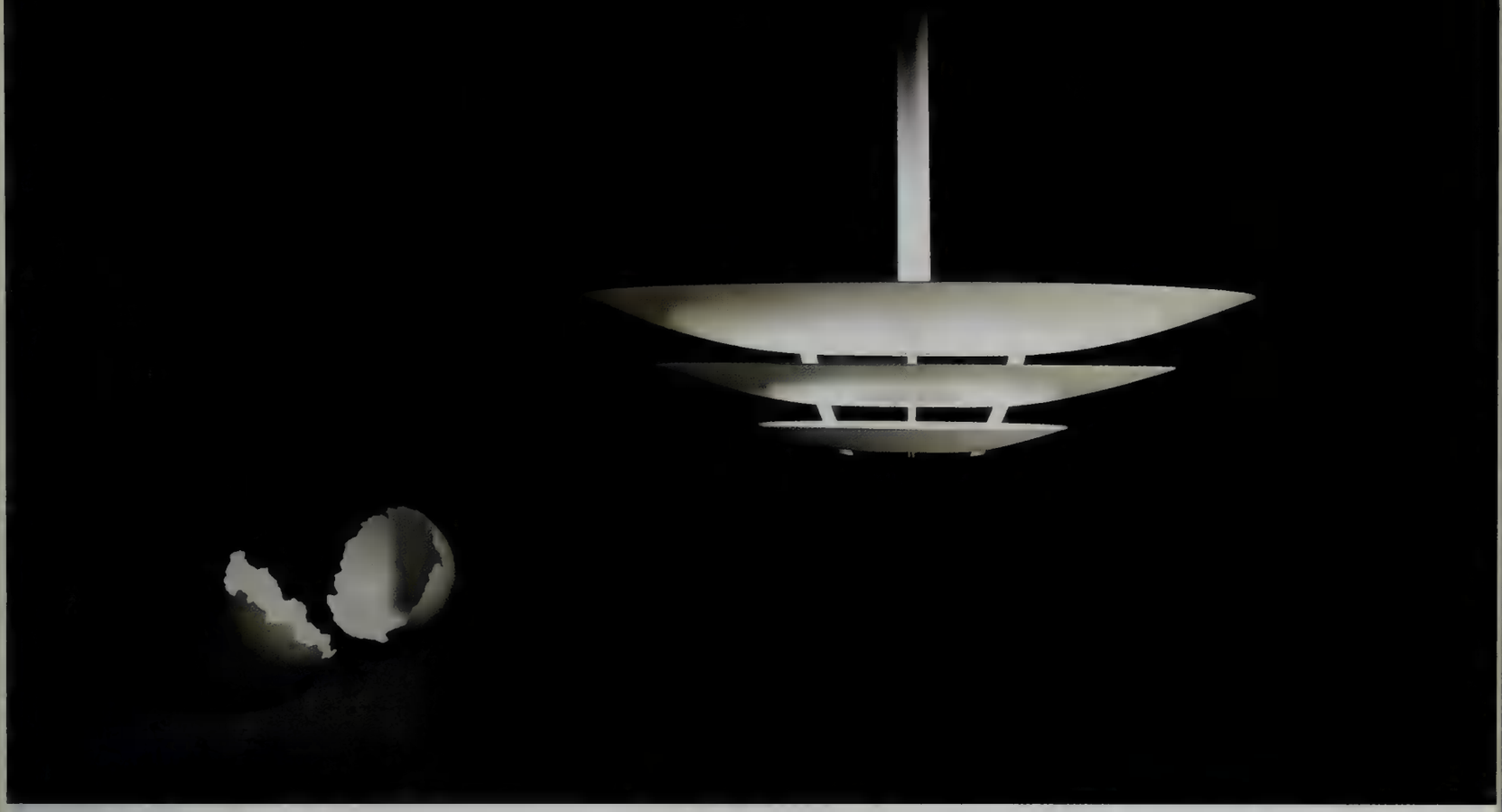
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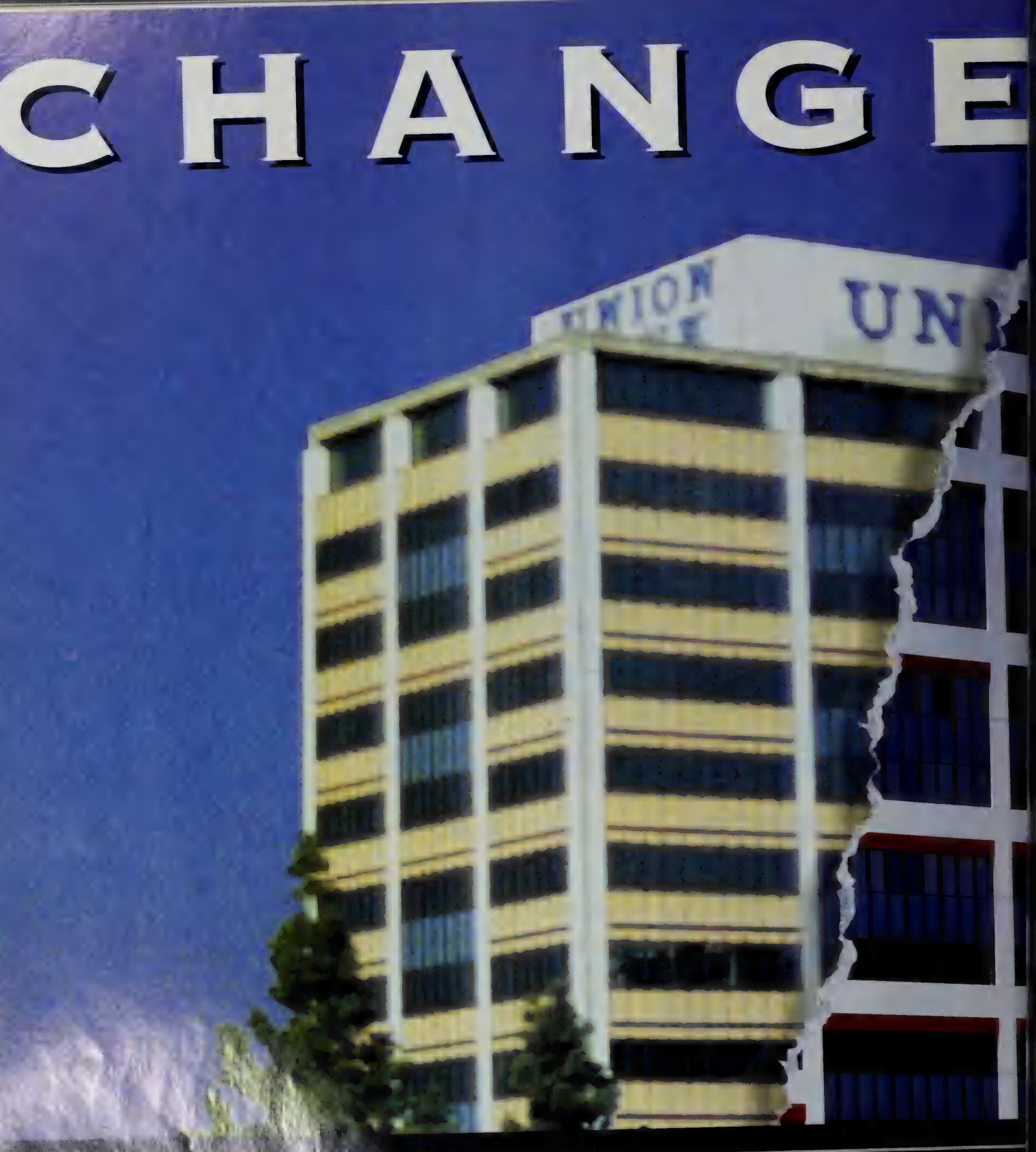
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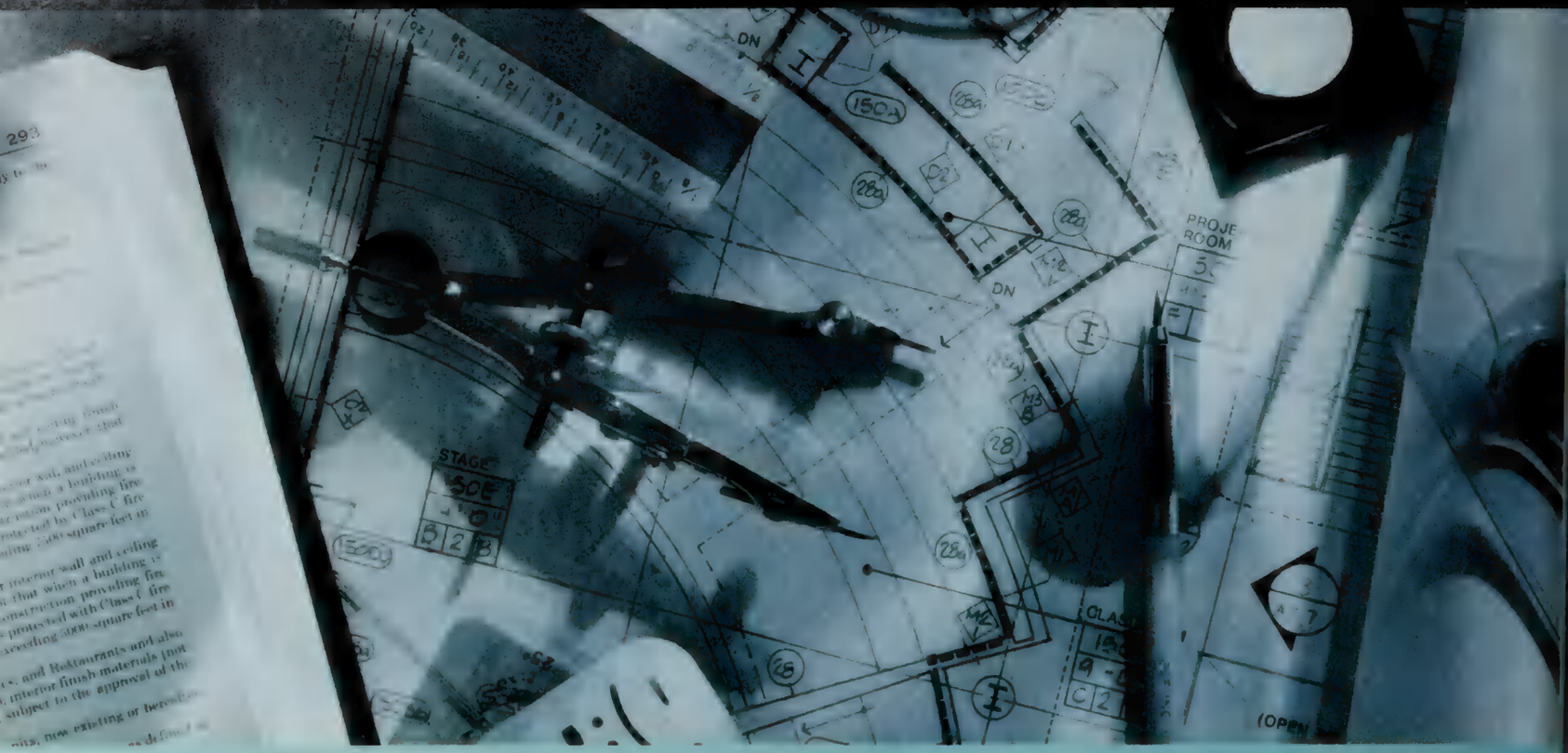
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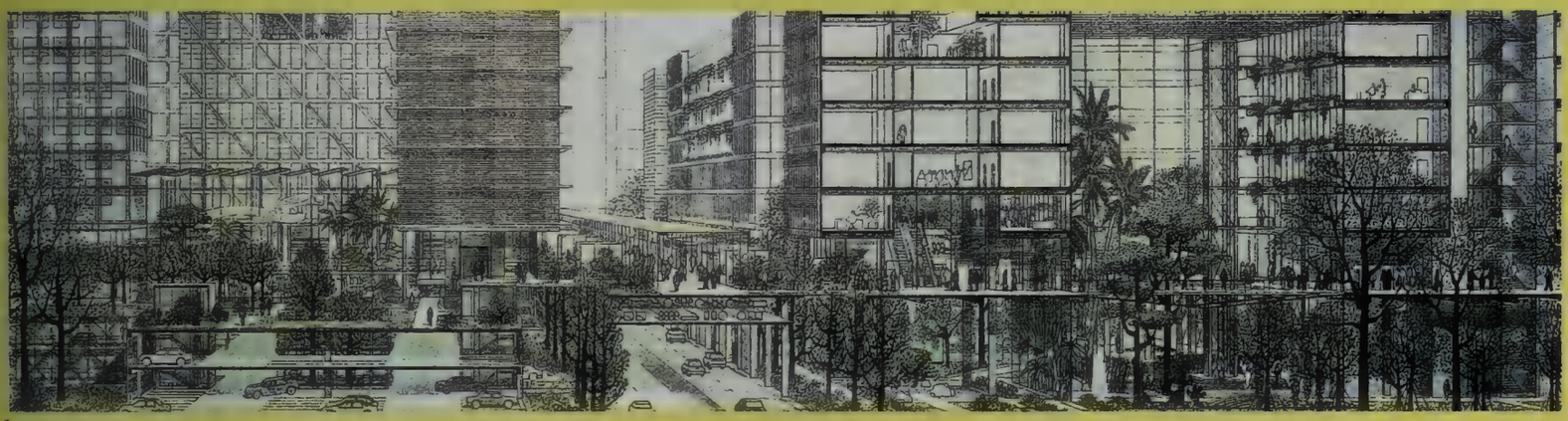
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NOT A LIMITATION.

Vienna

Second City Center to Blossom from Garbage Pit On Left Bank of Danube



1



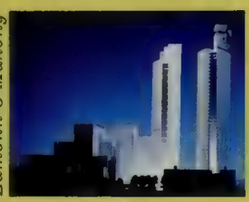
Yoshio Takase/Ketoria

2



Werzowa/Michlmayr

3



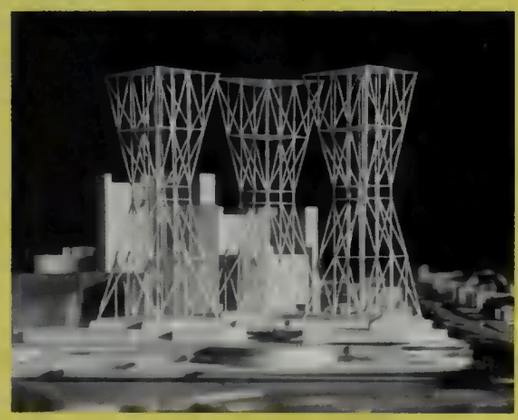
Eamonn O'Mahony

4



Werzowa/Michlmayr

5



Werzowa/Michlmayr

6

Back in the roaring '80s, Vienna planned an EXPO 95 as the symbolic first act in the long-term urban development of the Danube's left bank. In 1991, however, the voters rejected the extravaganza, and WED (Vienna Development Company for the Danube Area) launched directly into plans for the 4.6-million-sq-ft residential and commercial Donau City.

A masterplan by Adolf Krischanitz and Heinz Neumann incorporates a four-story pit created by the excavation of rubbish and debris. Below-grade levels will combine roadways, parks, and landscaped areas in such a way that the buildings will appear to float on a transparent foundation of stilts and greenery (1). The level that connects with the surrounding terrain will be reserved for elevated pedestrian walkways and interconnected plazas. Directly beneath this street plane is a collector level containing infrastructure for the buildings, which can be plugged into the system to suit individual investors and an array of future needs.

For a twin-tower landmark, WED invited proposals from Vittorio Gregotti (6), Arata Isozaki (2), Kohn Pedersen Fox (4), Richard Meier, Jean Nouvel, Gustav Peichl (3), and Richard Rogers (5). Meier and Nouvel dropped out. A review board, meeting in May at the Vienna Secession, requested modified plans from Isozaki and Peichl.

Most residential work and the first office buildings should be finished by early 1997. The entire project is expected to be completed by 2005. ■

Japan

Balkan Palace Inspires Milanese Rossi's Japanese Shopping Center



Milanese architect Aldo Rossi drew on a third country for the exterior of the first Japanese shopping center to be designed by a foreign architect. The fourth-century Diocletian's Palace, a self-contained fortress town in Split on Croatia's Dalmatian coast, inspired the oversized towers at the corners and entrances of the almost windowless three-story structure of painted reinforced concrete. Located in Gifu, a city of 420,000 in central Japan, the 250,000-sq-ft building incorporates rooftop parking. ■

California

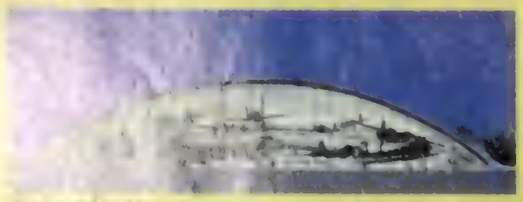
Israel, Ehrlich, and Anshen & Allen to Build on Two Campuses

Frank Israel, with Annie Chu, Barbara Kallis and Borah Associates, has won a competition for the $31-million fine-arts facility for the University of California at Riverside (right), with a scheme selected over invited entries by Peter Eisenman and Tod Williams/Billie Tsien, and, in earlier rounds, Steven Holl, Antoine Predock, and Michael Rotondi. Steven Ehrlich won, over Fred Fisher and Michael Rotondi/Richard Keating, a competition for the new library for Santa Monica Community College; the science building will be designed by Anshen & Allen. *Aaron Betsky*



England

American Air Museum Revs Up



Sir Norman Foster has unveiled plans for the American Air Museum in Britain, where up to 20 U.S. aircraft will be visible through a 295-ft-wide facade that recalls the shape of a hangar; the profile is an aerodynamic form suggesting a fuselage. The roof concept derives from the stressed-skin structure of airplanes, which enables all the elements to have the same curvature. All five roof components can be cast on site. Ove Arup & Partners is structural engineer. ■

Design

Briefs

Saving Savior Hospital

"The Russians have the highest maternal and infant mortality/morbidity rate in the industrialized world," says Richard L. Heaton, of Burt Hill Kosar Rittelman. The Pittsburgh firm has volunteered design services on 30,000-sq-ft of birthing suites, nurseries, and neo-natal intensive-care units at Moscow's Savior Hospital, but needs donations of wallboards with accessories and tools; vinyl tile with adhesives and tools; paint, ceiling tiles and grids, doors, frames, tracks for privacy curtains. Interior finishes must be sterilizable. "The list is shockingly modest," says Heaton. "We're accepting even seconds and flawed material." The hospital is currently a rough-poured concrete shell with single-pane steel windows in concrete frames with no caulking to keep out bitter Moscow winters. For information, call 412/394-7000.

Winners

New York State's Council on the Arts has awarded $10,000 architecture, planning, and design grants to glass artist/sculptor James Carpenter to work on Centerway Bridge; architects Elizabeth Diller and Ricardo Scofidio for a book on their installations; architect Michael Goldblum for heading volunteers who work with a Bronx community to improve public housing; architect Jack Travis to write on interior design by African-Americans; and architect Terry Van Dyne to study white-box apartment buildings.

Continuing Ed

The RIBA drawings collection is available on microfilm or microfiche from Microworld House, 2-6 Foscote Mews, London W9 2HH.

Remembered

▪ Reima Pietila, intellectual leader of the post-Alvar Aalto generation of Finnish architects, died in August at age 70. In practice with his wife, architect Raili Paatelainen, he built in short intense spurts after long periods of developing an expressionism based on the traditions and unique organic attributes of place. Among his best-known works are the free-form Kaleva Church at Tampere, the Dipoli Center in Otaniemi, and the new Finnish President's Residence in Helsinki.

▪ Alison Smithson, who with her husband Peter led the New Brutalism movement, died in August at age 65.

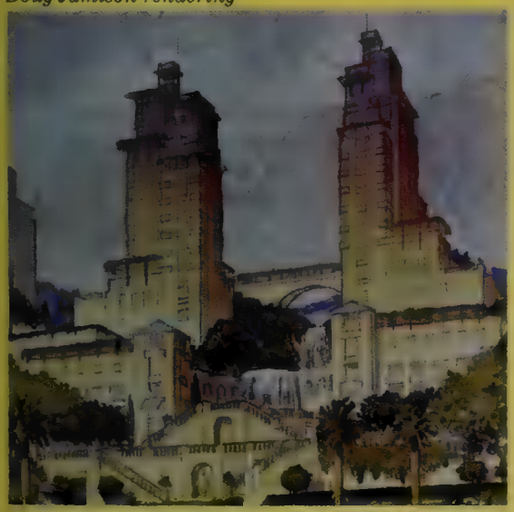
• A. Edwin Kendrew, involved in the architecture of Colonial Williamsburg from its inception in 1926, died in August at age 90. ■

Malaysia

Building on Water In Kuala Lumpur



Doug Jamison rendering



Kaplan/McLaughlin/Diaz has designed Gasing Heights, a 1,800-unit Kuala Lumpur condominium community, as a hilltop sanctuary enclosing a tropical landscape. A major component of the client program is a variety of unit types and building designs. Terraced carparks and medium-rise housing sited in three neighborhood clusters frame the high-rise condominium towers, private terraced gardens, and formal arrival courts. Each neighborhood is organized around a central park where formal-garden design elements combine with tropical informality. The 50-person-per-acre community includes schools, shops, and serpentine access roads. Construction on the $160-million project begins next June. ■

Oregon

Justice, by Design



Supreme Court Justice Felix Frankfurter's 40-year-old comment that "Justice must satisfy the appearance of justice" is taking hold in Portland, where BOORA Architects and Kohn Pedersen Fox, urged on by local judges and court administrators, are designing the new U. S. courthouse to appear as a place where justice is deliberate, balanced, and carried out on behalf of the public. The scheme addresses these themes in the massing and detail of a substantial 16-story limestone courtroom tower bordered by glass-walled courtroom lobbies that reorient participants and visitors back to daily life and the community. Plans include unobtrusive security, less heroic majesty for the judges, and a stronger presence for the jury, including design elements that link the jury box to the public seating to indicate that the jury derives from the public. ■

Los Angeles

Museum-Sponsored Affordable Housing Rises in Hollywood



Five years after Adele Naude Santos and Associates won the Case-Study-House-inspired design competition sponsored by the Museum of Contemporary Art (MOCA) and the Community Development Agency of Los Angeles, construction has begun on the affordable La Brea Franklin housing development in Hollywood. Organized around courtyards, the townhouse-style units will contain 40 one- to four-bedroom split-level apartments with private entries, dual orientations for light and ventilation, individual patios and communal porches. From the street, the complex will appear to be a few large houses set in gardens and shielded from traffic noise by a landscaped retaining wall. "MOCA's involvement now extends from exhibition programming to real-world issues," comments MOCA director Richard Koshalek. Carde-Ten is architect of record. ■



Getting Together

Collaborations on the Rise—And the Need for Careful Agreements

Collaborations between architecture firms are steadily increasing. Typically, one firm brings design and planning expertise for the specific project type (and sometimes a high-profile national reputation) while the other brings a local office near the project site and does the construction documents and administration. (Collaborations also allow small firms to compete for big projects with the production muscle of a larger partner.)

"Simplest is best," says Herbert McLaughlin, referring to contractual arrangements between two firms. (His firm, Kaplan/McLaughlin/Diaz, has already had over 100 collaborations on projects ranging from hospitals to shopping centers.) The construction-document and administration firm is often the architect of record and the design firm a consultant. It may, however, be desirable to get the client to sign separate contracts with each firm. Points to address in a collaboration agreement:

- *The firm that signs the construction documents.* Both firms should do it.
- *The firm responsible for code compliance.* It should be the CD/CA firm. If however the design firm provides drawings that do not comply, it should fix them on its own time.
- *The firm to take the primary burden in a lawsuit brought by the contractor or client.* It may be most efficient to have the CD/CA firm do so. If there is a dispute between the two architects on responsibility, they should arbitrate and resolve it quickly, along with an allocation of defense costs.

On lines of communication between firms, there are basic rules:

- Both firms must let the other know about all communications with the client.
- The CD/CM firm should not challenge the other on design in front of the client. This should be worked out in private.
- Keep roles clear. The design firm should have design control, but designing a complex modern building involves being open to input by many parties *including* the partner architect firm. While McLaughlin has seen collaborations of two design firms work on programming and master planning, "full collaborative design between two firms on one building is difficult." Still, if there are more than one building in a complex, a collaborative design effort might work if each firm designs its own building within agreed-upon guidelines.
- Decide which partner should seek new clients. Frequently, the design firm may be more experienced at competitive interviews. In any case, it is reasonable to share marketing expenses in a ratio with the percentage of total fee each partner receives.

"Both parties have failed if they have to struggle with value engineering late in a project," McLaughlin observes. "They need a detailed cost model early—preferably in the programming phase—and they need to follow it." Fiscal responsibility, however, should be borne by the architect of record. Another tool the two parties will need is a detailed list of drawings each party is to supply. It should include examples of drawings from other projects so each party can see what the other expects.

Give credit where credit is due. "That doesn't mean a faint asterisk in one firm's brochure referring to the other firm's name printed in light grey type on the the back of the last page," says McLaughlin. It does mean full credits in all text released by either office. Design collaborators should face the fact that local associates are going to learn from their design counterparts on the job and become potential competitors. At least, try to get collaborators to agree to continue their association in future work for the same client. *C. K. H.*

New Approaches

Practice with CMs, MBAs, and CAD

"Why does controlling money mean doing a better job?" asked Tom Beeby, Hammond Beeby & Babka Architects, during a discussion of construction management's inroads into architecture on the occasion of RECORD's breakfast at the AIA convention in Chicago this summer. "My firm [Lord Aeck & Sargent Architects] wants to keep control and counter the CMs," said Larry Lord, viewing it as a means for architects to hold onto design quality *and* their share of the shrinking construction pie. He has an MBA and is sending other staff for that degree.

"There are advantages in joining forces with people who manage," countered Beeby. "Architects think they will make more money by taking over construction, but they give other services away such as interior design and graphics, which are not taught in the schools," he concluded. "Construction management is a fact of life in Chicago," added Phillip C. Johnson of Johnson & Lee. Design-oriented firms are most likely to be affected, observed William Rawn of William Rawn Associates who sees CMs growing in Boston: "There's a big split between the effect on small firms and the big ones."

Here are other changes the group saw in the profession. "The [growing] effort that goes into getting work and [the changing nature of] whom you're working for," said James Goettsch of Lohan Associates, which is designing a Federal Reserve Processing plant in the U. S. and a small office building in Berlin, and has recently entered an affiliation with several Japanese firms. Kristine Fallon, an independent architect and computer consultant, mentioned smaller firms jointly going after work and, of course, the importance of computers. "Electronic sources of information will overtake us before we know it," she said. The degree of computerization varied widely among participants—from Lord's "totally computerized" to Johnson's "not CAD oriented." *C. K. H.*

Practice

Briefs

A/E/C Systems goes North
The sponsors of the largest U. S. computer trade show for the construction industry are taking their exhibition to Toronto, Canada, on December 1-3. Joint sponsor is *ENR*. Contact Sharon Price, A/E/C Systems Canada, POB 310318, Newington, Connecticut 06131-0318 U. S. A. (800/451-1196).

Houses top new business in Chicago
In a survey by the AIA Chicago Chapter, almost 70 percent of respondents are finding the majority of new business in the design of new houses and remodelings, which constitute 25 percent of all offices' work. The second highest category of new business? Commercial and office design—especially the rehabilitation of existing space for owners competing to find new tenants.

Looking inside Los Angeles houses
Architects in this city have been sponsoring tours of their residential work. The last tour will be on November 14 in the Silverlake/Los Feliz areas and includes houses by Frank Fitzgibbons and Frank Israel. Contact Nicci Solomons (203/380-4595).

Increasing security through design
A three-day conference in Washington, D. C., December 9-11, explores how building design can prevent crime. Contact The AIA/ACSA Council on Architectural Research, 1735 New York Avenue, N. W., Washington, D. C. 20006 (202/785-5912).

Crossing boundaries in practice
A three-day symposium in Cincinnati "will overcome barriers of time, place, culture, and profession" by examining solutions to specific challenges (i.e., the rebuilding of Los Angeles after the riots) and general challenges (e.g., Britain's intention to abolish its requirements for architectural licensing and registration by the end of the year). Contact the University of Cincinnati (513/556-3001).

Traveling green
Baltimore architects Ziger Hoopes & Snead have been encouraging employees to travel to work in fuel-efficient ways. The results: 30 percent use bicycles and 23 percent still drive their own cars. *C. K. H.*

Design Police

GSA Establishes Peer Review For Major Public Projects

Frequently maligned as an unwieldy government bureaucracy, the U. S. General Services Administration is working to change its reputation. The GSA has established "peer review" for the design of selected major federal buildings in order to enhance their architectural excellence. Launched earlier this year, the program provided critiques by an individual independent design professional on one project and by a panel of design professionals on another. The critics were recommended by the National Endowment for the Arts.

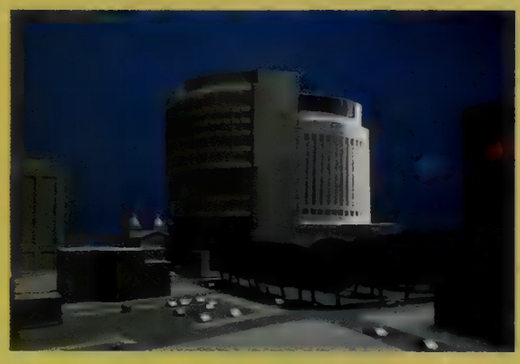
The pilot projects were a $214.2-million courthouse and federal office building on Long Island, New York, by Richard Meier & Partners, and a $117.6-million federal complex (photo) in Kansas City, Missouri, designed by Ellerbe Becket and Abend Singleton Architects. As models for a new program, the two design reviews were structured differently to evaluate different critiquing processes. GSA's chief architect Edward Feiner administered the program.

Meier's Long Island project, a 450,000-square-foot complex, to be located in East Islip, was the subject of a two-stage review by a panel of three practitioners—Charles Gwathmey, Hugh Hardy, and John Goody. The first critique was held at the preliminary-schematic stage of design. As required for major GSA projects, Meier developed three approaches to solve the program.

Rather than relying on government architects to analyze the proposals, the peer-review process allowed GSA to use the expertise of recognized private-sector professionals in reviewing the three designs. "Each panelist was encouraged to give his or her input—whether to pursue further one approach, to do a hybrid of the schemes, or to develop a new direction," explained Feiner. Two months later the panel reconvened to critique Meier's new scheme based on their recommendations.

For the Kansas City project, a 351,000-square-foot federal courthouse and office building, GSA invited University of Minnesota architecture-department head Garth Rockcastle (of the Minneapolis firm of Meyer Scherer and Rockcastle) to review schemes proposed by Ellerbe Becket and Abend Singleton. "Although both review processes were productive," Feiner maintained, "we found that the dynamic debate in a group proved to be the most effective forum for design critique." For future peer reviews, the GSA will also conduct the critiques during preliminary schematics to encourage as much input as possible before the design architect locks in on a any one direction. The GSA is currently identifying public projects to be reviewed next year. *Lynn Nesmith*

Lynn Nesmith is a freelance writer based in Alexandria, Virginia.



The GSA chose this 351,000-square-foot federal courthouse and office building in Kansas City, Missouri, designed by Ellerbe Becket and Abend Singleton, for one of its test critiques. Garth Rockcastle, the head of the architecture department at the University of Minnesota, was the sole critic. A panel peer-review system will be used for future projects.

Architectural Metals





300b

300. Solid-metal skin/self-lock seam
A fabricator of architectural-metal building products offers cassette-type panels (300b) and a no-clip raised-seam roof system (300c) made of solid copper. The roof, UnaClad System IV, comes in widths from 10- to 30-in. in steel and aluminum as well as 16-oz architectural-grade copper. Installed by fastening one edge to either substrate or purlin and interlocking the opposite edge securely to the next panel, the roof can accommodate compound angles (300a). In copper, the system qualifies for a UL-90 uplift rating when specified in 12- to 14-in. pan widths over a plywood substrate, as the UniClad tempering process is said to give the metal a "memory" that restores the seam configuration after loading. As with all roofs, transitions deserve special attention; a design/specification binder, complete with SMACNA details, is offered to architects. For exterior walls, 1/8-in. thick Series 3000 panels are hefty plates in flat, curved, bent, and compound shapes. Radiused returns are exceptionally smooth; open-joint panels are mounted with staggered clip angles. Copper Sales, Inc., Minneapolis. ■



300c

301. Emphatic ventilation hoods
A source of Scandinavian kitchen equipment has expanded the capacity of its Danish metalworking facility to offer custom hoods for exhaust fans up to 1,800 CFM, with incandescent, fluorescent, or halogen lighting. Said to be available on 12-week lead times, hoods are made of seamlessly welded metal in round, radiused, arched, and faceted forms. Metal options include copper, brass, stainless steel, and bronze, in finishes such as antiqued bronze, satin brass, oxidized aluminum, faux-finish verdigris, and custom-match paint. Design documentation can be as simple as a thumbnail sketch; a what-if brochure outlines functional parameters. Right: an arched curve of stainless steel lit by halogen spots; an angled flue supports a "floating" canopy. Abbaka, San Francisco. ■





Savvy fabrication and customizing technologies prompt new uses for metal.

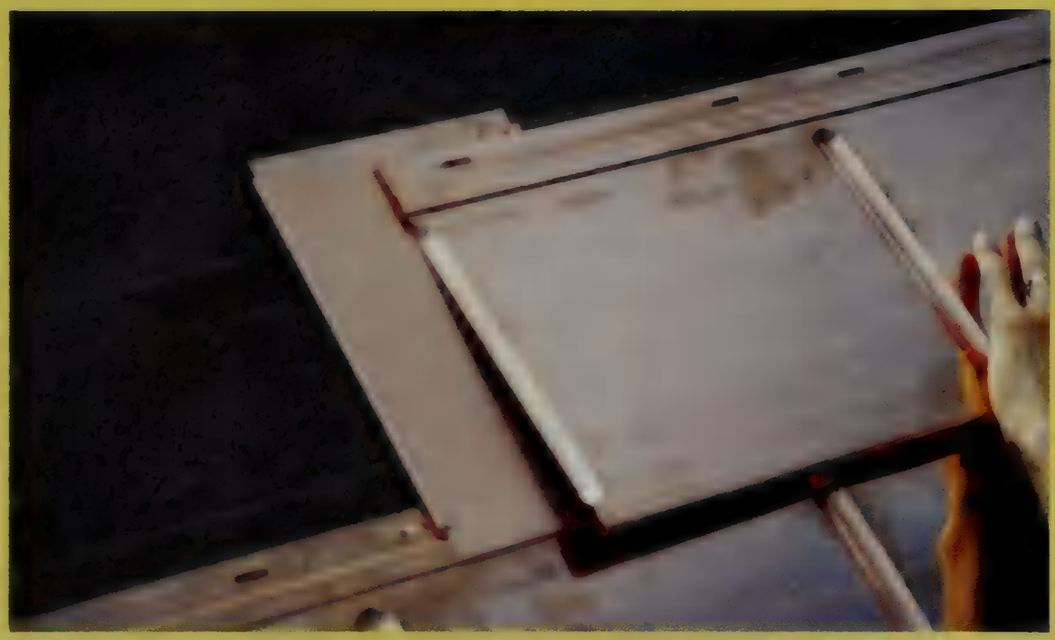
For more information, circle item numbers on Reader Service Cards.

302. Copper roofing shingle

Closing the loop—specifying building products with a high proportion of recycled materials—is easy with architectural copper, as it incorporates well over 90 percent recycled metal from OEM sources such as wire mills and stampers as well as from scrap.

Revere's new panel-and-pan system was designed to make installing copper roofing as easy as nailing asphalt shingles. Particularly suitable for homes and other low-height structures where their horizontal butt line would be effective, the shingles are supplied in 4-ft panels of 0.019-in.-thick copper stamped as four "tabs" with a 9-in. exposure; preformed concealed joint pans replace side locks. For installation on slopes of at least 3:12 over exterior-grade plywood or seasoned lumber, shingling starts with a copper edge strip placed at any location along eaves and proceeds upward. An installed roof weighs about 140 lb per square, and is strong enough to withstand foot traffic; scuffs and scratches weather and disappear over time.

Marketed at about $350 per roofing square, which includes shingles, joint pans, and copper nails, the roof's price is intended to absorb and stabilize the impact of copper-supply fluctuations. Revere Copper Products, Inc., Rome, N. Y. ■

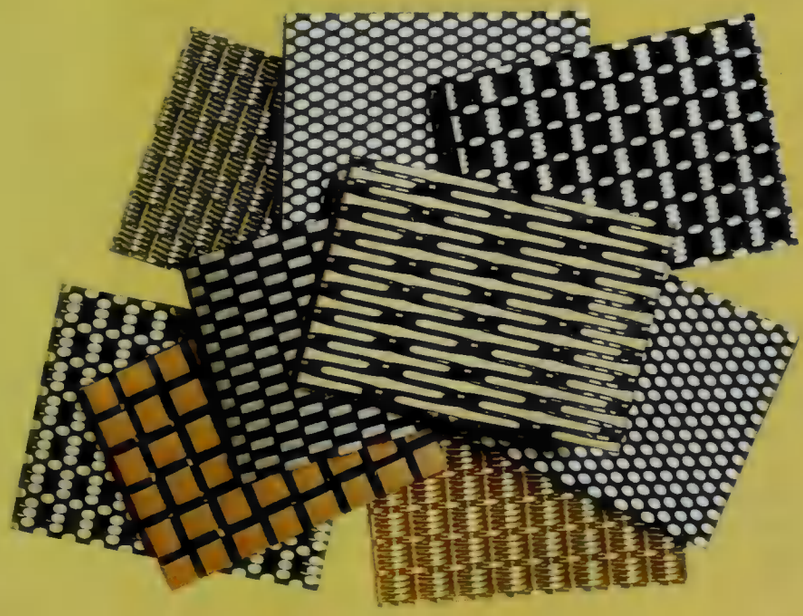






303. High-contact decor

A durable and decorative material designed for finger-smudge and dent-prone interior applications such as elevator cabs, escalator walls, and ticket counters, solid-metal architectural mesh can also be used as a free-standing partition, where light can filter through the interstices of warp and woof. Made in a true weaving process out of solid-metal wire—stainless steel and brass are the most popular—mesh offers dozens of customizing options, including background colors, different wire dimensions and textures (wire is crimped before weaving), and patterns such as basketweave. Polishing the completed mesh adds another design element, creating light-reflecting oval, diamond, and square facets. Cambridge Wire Cloth Co., Cambridge, Md. ■



Adding Data to CAD Anaheim-AutoCAD Data Extension

By Steven S. Ross

For years, we've been predicting that sooner or later architects will begin using CAD drawings for other than, well, drawing. It's not that software suppliers, particularly suppliers of AutoCAD add-ons, haven't been trying. Softdesk, Timberline, Kativ and many, many others offer plenty of ways to link data with drawings.

Now, thanks to faster, cheaper computers and to software advances, linking lots of information to lots of drawings is about to become more routine. The growth of automated product catalogs has accelerated the process. And the economic climate of the past few years has pushed CAD users into such "data-heavy" fields as facilities management and land-use planning.

But different vendors—even when they all attach to a common CAD "engine" such as AutoCAD—have not always been compatible with one another. Until recently, AutoCAD vendor Autodesk has been unwilling to open its file structure to all comers, for instance. And different vendors have been using the "extended entity data" section of AutoCAD DWG files in different ways.

This month, we look closely at Autodesk's "Anaheim" database link, and discuss what you might expect by linking to data supplied by building-materials firms. Next month, we look at IBM's workstation-based CAD software. We'll also be looking soon at Intergraph's Microstation 5 for Windows NT and at ■ new round of Windows and Macintosh System 7 software in the months ahead. All offer ways to combine data and drawings, in a single computer and over networks.

Anaheim—its official name is the AutoCAD Data Extension, or ADE for short—is being released this month by Autodesk as an add-on for the Windows, DOS, and Sun SPARC versions of its flagship AutoCAD Release 12. With Anaheim, you can search huge databases (even on a network) select specific pieces of information, edit them, and drag them into your AutoCAD drawings or export them to new files—even other database files.

The core of Anaheim was licensed from IntelliCADD, Mentor and others. But it has been improved, and benefits from Autodesk's resources and its better understanding of its own file structure.

Autodesk had been thinking of the technology mainly to handle giant GIS (geographical information system) databases. But manufacturers of building products such as windows, lighting, and modular furniture, are standing in line to exploit it, too. Anaheim should also make it easier to do cost estimating, facilities management, building-code checks, and other data-intensive tasks—in effect, making the drawing only one manifestation of the professionals' description of a design.

To do that, Anaheim has some "intelligence." It can detect faulty joins—things that look all right on the screen or in a plot, but are not a true description of the entity being represented. It can match joins across adjacent drawings and stretch or compress different drawings to match them up. It also makes AutoCAD much more network-friendly. For instance, it allows you to search dozens of files and extract relevant data from them. But it only locks the files as it is accessing them. Afterwards, it only locks the sections you've extracted (along with any linked data).

Finally, Autodesk has allowed third-parties (or savvy offices) to write ADS or AutoLISP add-ons to the add-on. The early announcements have been GIS applications from Cadlynx (713/647-9321) and LandCADD (303/688-8160). Anaheim includes an SQL (structured query language) engine. You can write "almost plain English" SQL queries to access data (or point to elements of queries and let Anaheim write them), and save the queries in a menu that others can click on, from inside AutoCAD itself. The software understands dBase, Paradox, Oracle, Informix database software and ODBC (Microsoft's generalized standard for databases, particularly Windows databases).

In short, Anaheim expands upon its origins to bring much mainframe/workstation functionality to the PC world, just as competing workstations are priced nearly at PC levels.

We tested a "beta" version on a 33 MHz, 80486-equipped computer with 16 MB of random-access memory and test files on CD-ROM. That's about twice as much RAM as a typical CAD seat these days, but the extra memory (in the form of two 4 MB SIMM modules) would cost about $400, well worth it—when we cut MB out, we slowed down considerably. *Circle number* **304**

Anaheim-AutoCAD Data Extension Summary

Equipment required: Any equipment powerful enough to run AutoCAD Release 12. For DOS or Windows, an 80386 CPU or better, 8 MB of random-access memory. For Sun Solaris, 8 MB is listed as a minimum, but 12 or 16 MB would be more comfortable.
Vendor: Autodesk, Inc., 2320 Marinship Way, Sausalito, Calif. 94965, 415/332-2344; 800/964-6432. $595.
Manuals: We looked only at pre-release material. But it contained an excellent tutorial suite (concentrating on architecture and GIS) and a good command reference.
Ease-of-use: It does complicated tasks in a less-than-complicated way, but you'll still have to understand something about the information you are trying to access. Anaheim creates a new pull-down menu inside AutoCAD; you access files to search from there, and not from the standard Files menu. When a file is first opened, Anaheim indexes it; that takes time. But the index files stay on disk; reopening a file that's already been indexed takes no extra time at all.
Error-trapping: Good on-screen checking for filenames, command syntax, and so forth. We did not have time to check file locking on a full network. It is possible to put data into ■ drawing by mistake, especially if you close the session by using the End command instead of Quit. ■

MiniCad+ 4

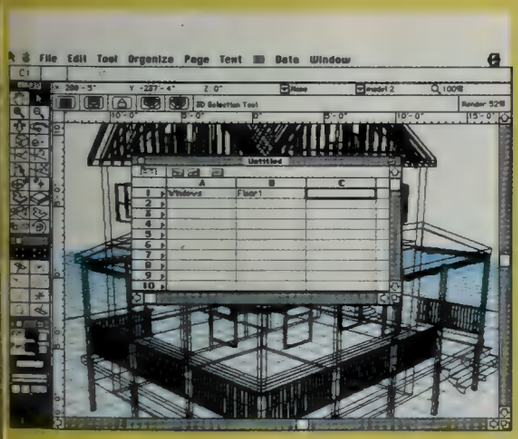
This 3-D CAD package for the Macintosh is an excellent upgrade from earlier versions. It is also a good upgrade path for Claris CAD users, now that Claris has announced it will not be upgrading its product; a good Claris-to-MiniCad converter is included. DXF imports and exports are also possible. MiniCad+ also exports directly to StrataVision and RenderMan for 3-D rendering. The Pascal-like macro language is straightforward for easy tasks, but (as with all advanced macro languages) requires plenty of practice for complex chores. The macro language has about 300 functions!

Users of any 2-D Macintosh CAD software who now want to upgrade to 3-D should be reasonably at home with MiniCad+. It has all the standard "high-end" CAD features—customizable line widths and patterns, fills, and a complete set of drawing tools. Unlike some Mac software, MiniCad+ is especially architect-friendly, with a parallel-line tool (for on-the-fly double-line creation) and ways to create new objects parallel to old ones.

You can do walkthroughs, flyovers, and complex 3-D rooflines with unusual slopes. Be prepared for slow screen redraws except on the simplest drawings and fastest Macs.

The 2-D and 3-D modules are tightly integrated, in that you can easily move from one to the other and easily turn a 2-D object into

Continued on page 122



MiniCad+ internal database is in spreadsheet format. All popular spreadsheet packages such as Lotus 1-2-3, Quattro Pro, and Excel can also be imported.

MiniCad+ 4 Summary

Equipment required: Macintosh with at least System 6.05. (Anything from Classic to Quadra works. Older Macintoshes such as the SE and II were comfortable, even for projects the size of small office buildings or apartment houses, for straight CAD without fancy rendering.) Fixed disk is mandatory; the program files total 1.7 MB and optional files bring the total to 3 MB. You need 2.5 MB of random access memory after the System and Finder are loaded. That means about 4 MB minimum for System 7. Supports most digitizing tablets. You will need a separate plotter driver; we used MacPlot Professional but Plottergeist and others should work fine.
Vendor: Diehl Graphsoft Inc., 10270 Suite 100, Old Columbia Rd., Columbia, Md. 21046, 410/290-5114; fax 410/290-8050, $795. Includes free technical support; you pay for the call or fax; support is also on Apple Link; there's a user group on America Online; one on CompuServe was being considered at press time.
Manuals: Excellent spiral-bound reference, tutorial, and MiniPascal (macro language) manuals are supplemented by a good VHS videotape overview.
Ease-of-use: A fine CAD implementation of the Macintosh interface. The menu structure does, however, differ from previous versions (the last one was 3.1). Thus, older macros that call menu items may need editing. Some of the key-command shortcuts require only a single key (not a key combination) to invoke.
Error-trapping: Excellent. The program is extremely stable—we could not crash it. Those who are upgrading may want to keep a copy of 3.1 on the fixed disk to avoid converting old macros. If you do, launch the application then use File Open to bring up the file; clicking on the file in normal Macintosh fashion will, of course, launch MiniCad+ 4, and automatically convert the old file to that format. MiniCad+ is network-friendly, but it is possible under some circumstances to overwrite files on one machine from another. We suggest System 7 (which has better network management features) if your network does more than link a bunch of Macs to a printer or plotter. ■

Automated Catalogs And Specifying Aids

What can you expect from automated product catalogs these days? And how might they be evolving? To find out, we looked closely at a few of them. We focused on the window and door business, because it was perhaps the first to distribute automated catalogs.

Pella distributes two on-disk versions of its catalogs for windows, doors, sunrooms and skylights. One (DESIGNER) works within AutoCAD; it is particularly tied to ASG Architectural 6.0 (or ASG Core), but will run without the ASG products. The other, Selector, has DXF files for elevations and cross sections of the standard Pella line. It is available on Macintosh or DOS disks for use with almost any CAD software. One disk contains specification files. The catalog has been evolving on disk since the first version was released in 1986.

Andersen distributes CADD-I. There are three modules. One does 3-D plan/elevation symbols or 2-D elevations inside AutoCAD, another does 2-D DXF (separate symbols for plan and elevation, and cross-sectional

Continued on page 122

Automated Catalog Summary

Some vendors will send catalogs (disks and manuals) free to qualified professionals.

Andersen Windows, Commercial Group, 100 Fourth Avenue North, Bayport, Minn. 55003-9989, 612/439-5150. *Circle number* **306**

Electronic Product Information Corp., 545 Mainstream Dr., Suite 430, Nashville, Tenn. 37228, 615/734-1500; fax 615/734-1514. *Circle number* **307**

Marvin Windows & Doors, P.O. Box 100, Warroad, Minn. 56763, 800/346-5128, fax 612-452-3074. *Circle number* **308**

Pella (Rolscreen Company), 102 Main St., Pella, Iowa 50219-9988, 515/628-1000, fax 515/628-6070. *Circle number* **309**

Sweet's Electronic Publishing, 99 Monroe Ave. N. W., Suite 400, Grand Rapids, Mich. 49503-2651, 616/454-0000, fax 616/454-4140. *Circle number* **310** ■

Tearing Down the Temple: The New Civic Architecture

Forsaking marble for stucco and wood, many Southwestern architects are designing civic buildings that are tied more to the landscape than to Classical traditions.

By Aaron Betsky

Tilt-up concrete slabs, rough timber, galvanized metal roofs, large porches, and biomorphic forms are not elements we usually associate with civic architecture. Yet in the Southwestern states, a group of architects is creating community centers, libraries, and other institutions that elevate the ramshackle rather than bury it with marble.

Designers such as Rob Wellington Quigley, Antoine Predock, Rebecca Binder, Koning/Eizenberg, and William Bruder have evolved a new way of creating such buildings to convey a sense of community instead of imposing an alien style for the "good of the community."

We tend to think that our civic structures can act as the repository for the values of a community only by distancing themselves from the slang of everyday buildings. From the Ecole des Beaux-Arts we learned to see architecture as the embodiment of the state, as something intentionally foreign to everyday life. To be recognizable as monuments, the institutions of state have traditionally sought to embody enduring values, usually by wrapping themselves with strong materials such as marble and borrowing elements based on the architecture of the ancients. These buildings tend to have a memorial or "dead" quality, to be bigger than life, to be perfect in ways people never can be.

Scale, legibility, and context

Though we may question such grand tactics today, certain common-sense rules underlie this tradition. "It's a question of scale, legibility, and context," points out architect Rebecca Binder, describing her own recently completed Visual Arts Facility for the University of California at San Diego.

In other words, to establish a civic presence, a building has to be large enough so it won't be swallowed up either by its site or context. At the same time, it has to be recognizable as a place of importance and as a design that embodies its physical and social community. These three issues are at the heart of all civic architecture and can be seen in stripped-down forms in the work of the architects shown in this article.

While the "style" or way of working varies from one architect to another, each of those featured here has dropped what Binder calls "a great deal of monumental baggage that doesn't seem to work anymore," and replaced it with amenities that do. In her own work, that has meant adding large and gestural porches, following local building practices, and echoing forms familiar to surrounding communities.

"It is a question of making something noble rather than grand," she says. To do that, Binder has used overscaled wood members that create shade structures and the elongated proportions of simple stucco forms.

As Rob Quigley puts it, "I use the patterns of the community. Esthetics is only a mechanism to get at the essence of the issues." He does this by designing in a participatory workshop format, thereby doing "an end run around all of the representatives and review boards." Quigley explains, "When you work directly with the people in the community who are actually going to use a building and listen to their needs, you get your design freedom back in spades. By using vernacular building practices, I can draw on a trove of knowledge that makes things a lot easier." It then allows him to use "what little money is left in budgets these days to make a few moves against the institutional character of most of these buildings."

Such "moves" often take the form of outdoor spaces that are highlighted more than the strict programmatic elements. For example, a community-services facility Quigley designed for a Hispanic neighborhood just east of downtown San Diego seems bigger than it really is thanks to ample outdoor spaces and the pergolas that make them the true meeting rooms of the small building. As Quigley explains, it is "both residential and bigger than that." Not only are such add-on structures cheap to construct and heavily used, but, as Binder points out, "nobody is going to object to making courtyards and gardens."

Moreover, this new breed of civic space celebrates what we often think of as the ticky-tacky construction of many of our cities, "by getting into it instead of going beyond it," says Quigley. While cheap and easy to build, this new kind of civic architecture also follows the Modernist tradition of stripping the forms of the past to their bare essentials.

The simplest act of this new generation of civic design is to open up a space within the confusion of commercial-strip development. "We argue for an architecture that is based on common sense and celebrates the landscape," is how Elizabeth Moule, of the Los Angeles firm Moule/Polyzoides, puts it rather grandly.

Distrust of government and architects

Yet one can also take a more cynical view of this whole process. Civic architecture doesn't have columns anymore because nobody wants to pay for them. Architecture in general, and civic architecture in particular, is expensive to build and difficult to justify in an era when just keeping people fed, sheltered, and healthy takes up more resources than we are able to muster. Moreover, most citizens distrust both their own government and paid professionals as wasteful and out-of-touch.

"People want things that are inconspicuous and harmless," says Julie Eizenberg of Koning/Eizenberg Architects. "They distrust architects' visions." She points out that recent experience with communities using facilities designed by her firm show that people are concerned about security, low maintenance, and low visibility. "They don't want what they see as frills."

As a result, Eizenberg says "we often push our designs toward invisibility or sweetness, which means to the edge of credibility." Many times "there simply isn't any money in the budgets" to do anything that might be associated with traditional monumental building practices. So she and her partner, Hank Koning, use the typology of available building materials—creating civic buildings out of stucco and off-the-shelf materials, while using voids, courtyards, and drop-off areas to accommodate the true civic life of the facilities.

Critic and designer Reed Kroloff has watched the same process at work as Phoenix "has tried to buy itself in one decade all

the civic buildings ■ real city is supposed to have." The original plan for its new city hall, designed by Barton Myers in 1989, was a Postmodern version of a grand civic structure. Now under construction (after numerous political and economic battles) is Langdon Wilson's version, which Kroloff describes as "a Modernist box with a funny screen that responds to our climate and not much more."

Kroloff says, "The real problem is that we have a transient culture, both in terms of values and population, so you can't really fix anything. To most people civic structure means whatever helps you get to the shopping mall more quickly."

What Kroloff sees as an appropriate civic architecture is one that connects people to the underlying forces shaping ■ particular place—forces that often are obscured by recent urban development—while at the same time accommodating the multifaceted needs of a modern community. A good example, says Kroloff, is Will Bruder's central library in Phoenix, currently under construction, which is "a big shed that reminds us of the city's history as an agricultural depot" and which uses its size to "connect us back to the landscape." On the inside, the building brings together all of the amenities of a modern library, "condensing current reality" in one place.

Two groundbreakers

Frank Gehry and Antoine Predock laid the groundwork for much of this new work. Gehry started in the 1960s by exploring the nature of construction and the imagery of the commercial strip, while Predock examined both the built and the natural landscape in his work. Both architects have developed an enigmatic architecture that these days show marked similarities. It is as if the swooping forms, inward-turned mountains of cascading skins, fractured geometries, and sculptural add-on gestures—whether in Gehry's Disney Concert Hall or Predock's Arizona State University Arts Center—are celebrating and mourning the loss of ■ legible civic language.

The architects just after Gehry and Predock reject (or don't have the budgets for) this

The projects shown below all use inexpensive materials and elements to reach out to adjacent outdoor spaces: Rebecca Binder's Visual Arts Facility at U. C. San Diego (1), Koning/Eizenberg's Ken Edwards Center for Community Services in Santa Monica (2), Binder's ICS/Engineering Research Facility at U. C. Irvine (3), Rob Quigley's Linda Vista Library (4), and Quigley's Escondido Transit Center (5).



1 © *Jeff Goldberg/Esto*



2 ■ *Tim Street Porter*



3 ■ *Jeff Goldberg/Esto*



4 *Rob Wellington Quigley*



5 ■ *David Hewitt/Anne Garrison*

kind of profound meditation. For them, the task of making a civic architecture in the mobile society of the Southwest revolves around creating structures that mine the building vernacular and carve out spaces that reconnect us with the landscape. They create small moments of coherence and connection within the always changing confusion of urban sprawl. Along the way, these buildings bypass the notion of a common language, a layer of civic agreement that we usually associate with a stable society.

This point is stressed by Craig Hodgetts, partner in Hodgetts and Fung Design Associates, who says, "There was this time when we thought we could bring everyone together by using a Spanish Colonial style, one that appealed to both Anglos and Hispanics. But architects lost the lifestyle in the process of making it a style. They lost the courtyards, the thick walls that sheltered, the sense of romantic oases. It all became meaningless decoration. We need spaces that empower people rather than overpower them."

To do that, Southwestern architects have taken two different approaches—either searching for common ground in the abstractions of Modernism and the presence of the landscape or accepting the provisionary nature of construction and celebrating the freedom this offers us. The first approach can be seen in the work of Koning/Eizenberg, Bruder, and Predock, and connects us to a sense of place. The second is evident in the architecture of Binder, Quigley, and Gehry, and focuses more directly on buildings and the building process.

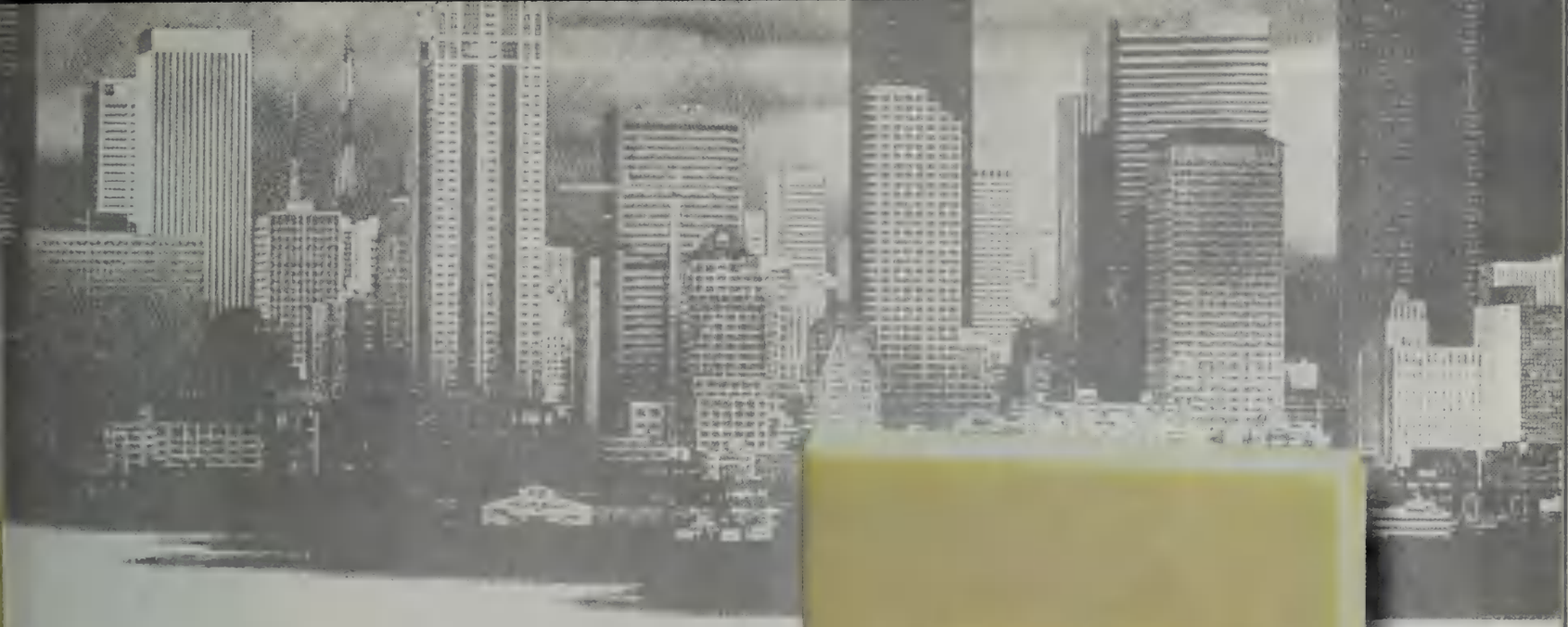
Traditionally, cities were places where people came together to create a *civitas* with a common language, a common place, and a common architecture. Today we live in collage cities of different cultures, different languages, and different structures. Their coherence is hidden, unstated, and perhaps only implicit. "We are building new communities today, but they are out there in the 'edge cities' and we need to figure out their nature, not impose some architectural style or idea of propriety on them," says Richard Stacy, a principal of Tanner Leddy Maytum Stacy Architects in San Francisco.

In many ways, society is infrastructure—both the physical systems, such as roads and fiber-optic cables, that connect us to each other, and the historical bonds that tie us to a particular place. As Stacy explains, "If society is an infrastructure, then the work of architecture is to reveal it, bring people into contact with it, make a place out of it." Civic architecture is thus not a question of imposing a style on a community; it is a question of exploring the hidden elements that form a community in the first place. ■

Drawn for ARCHITECTURAL RECORD by Sidney Harris



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Wayne Ruga. Founder of the National Symposium on Healthcare Design.

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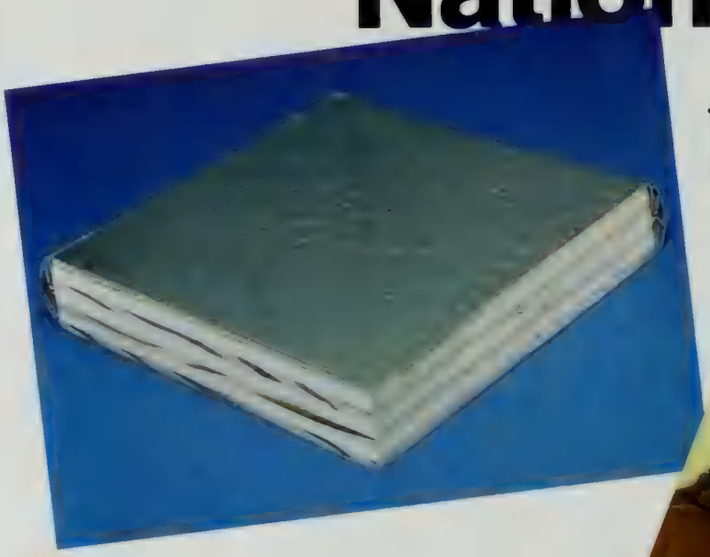
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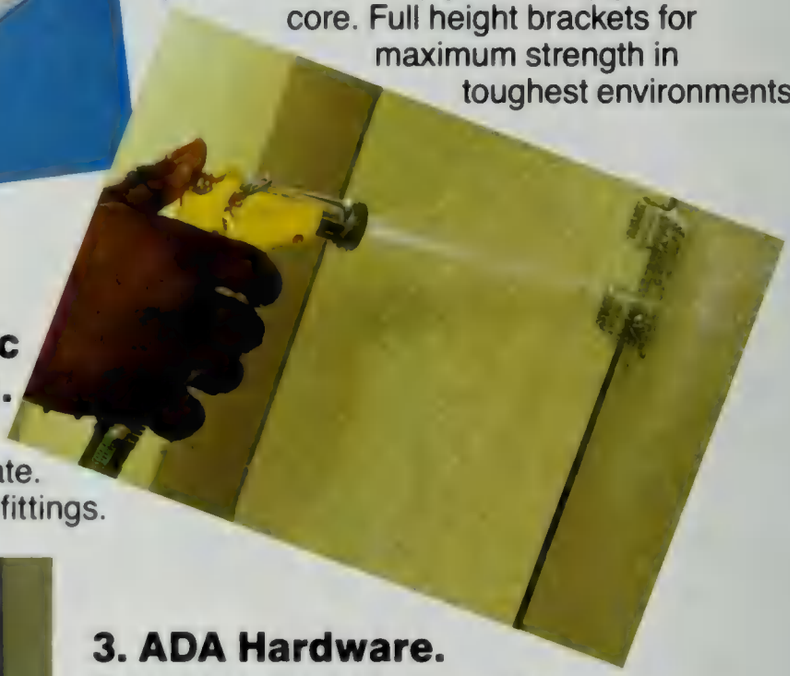
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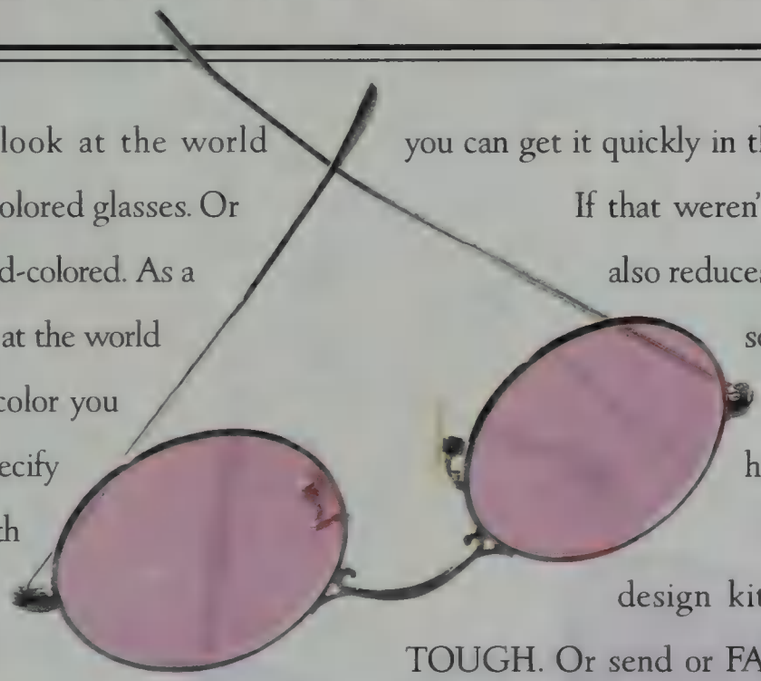


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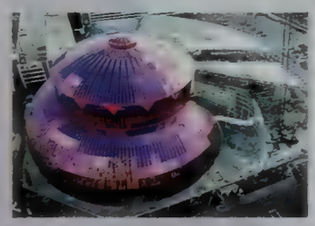
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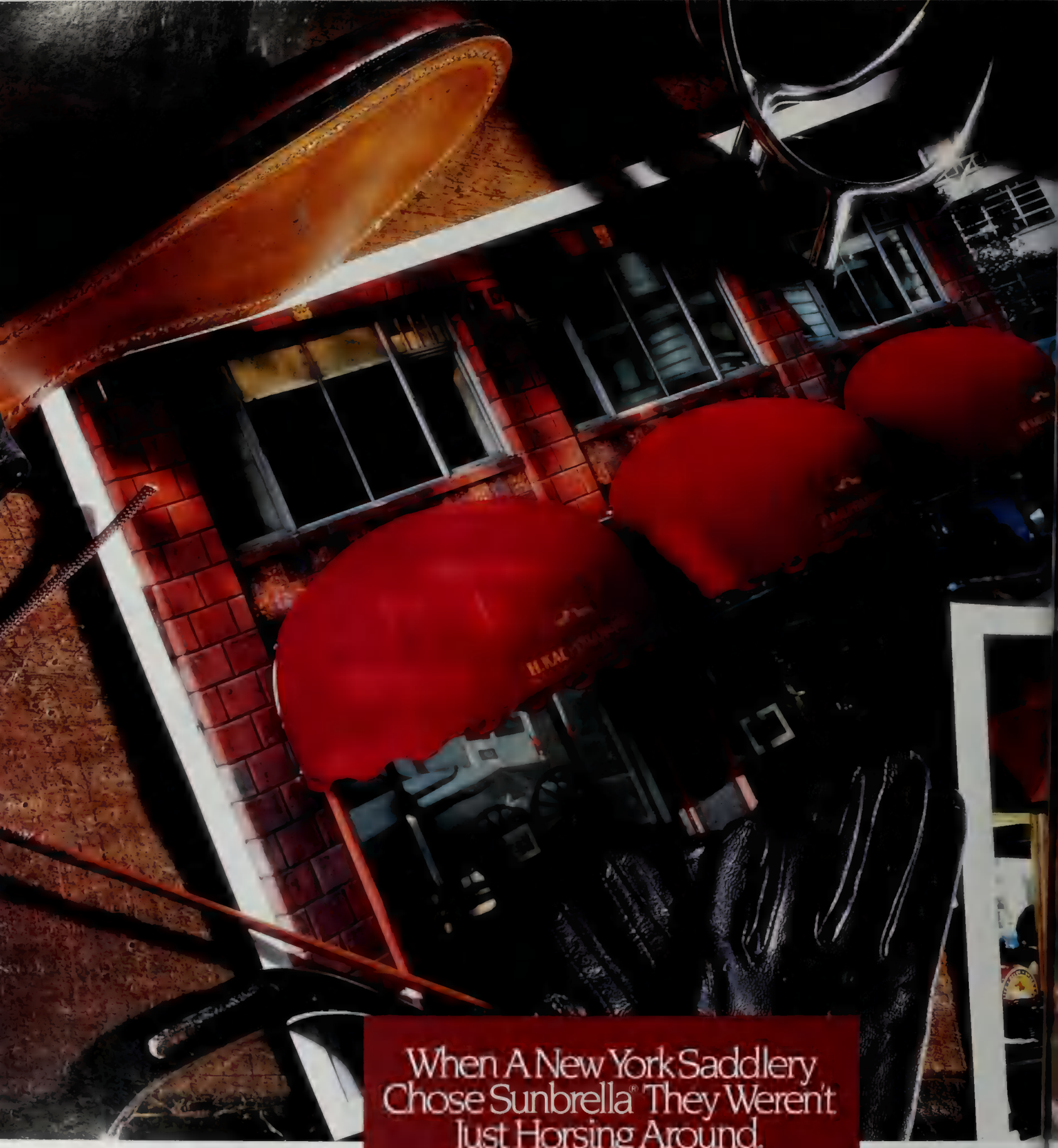
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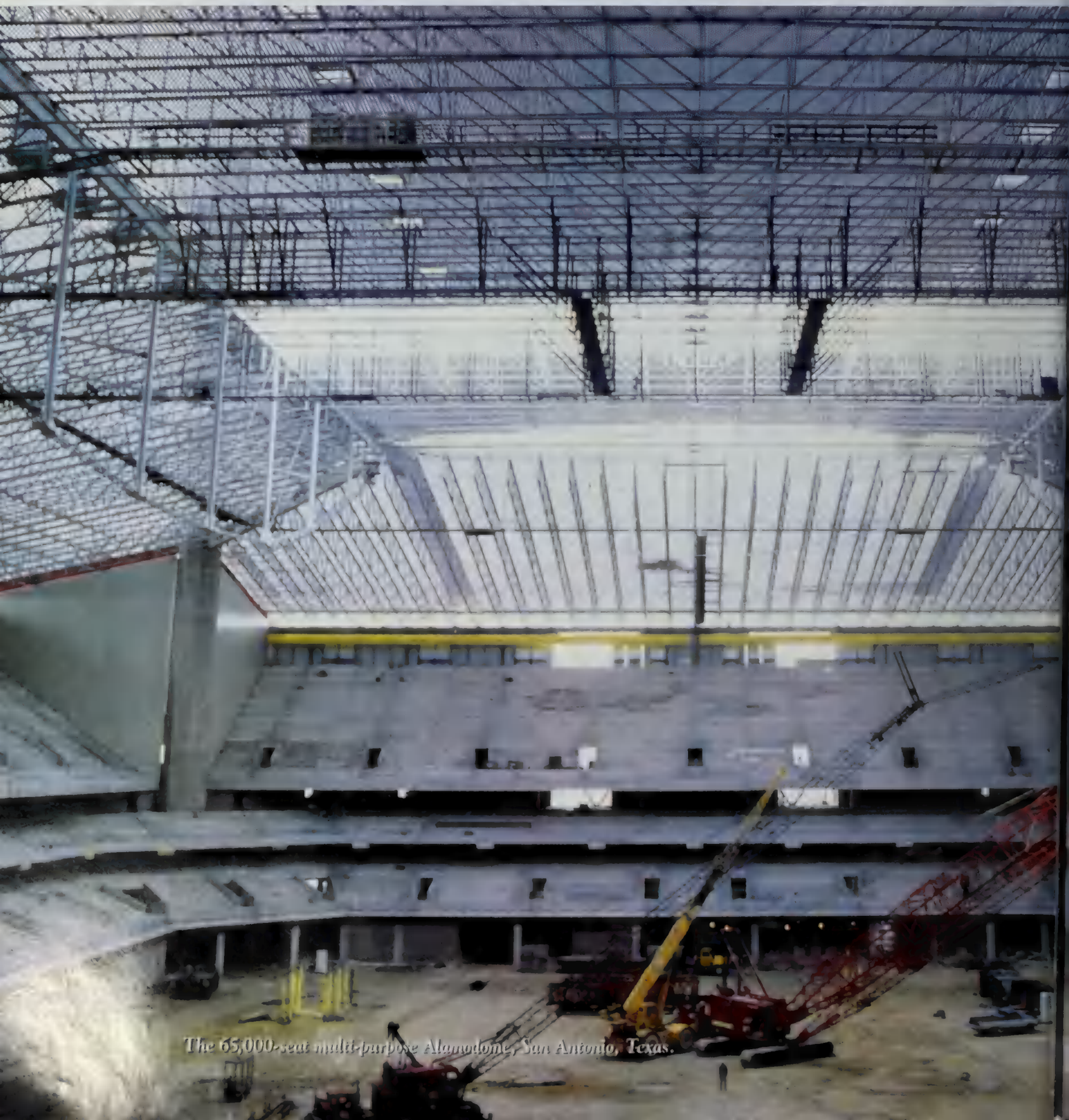
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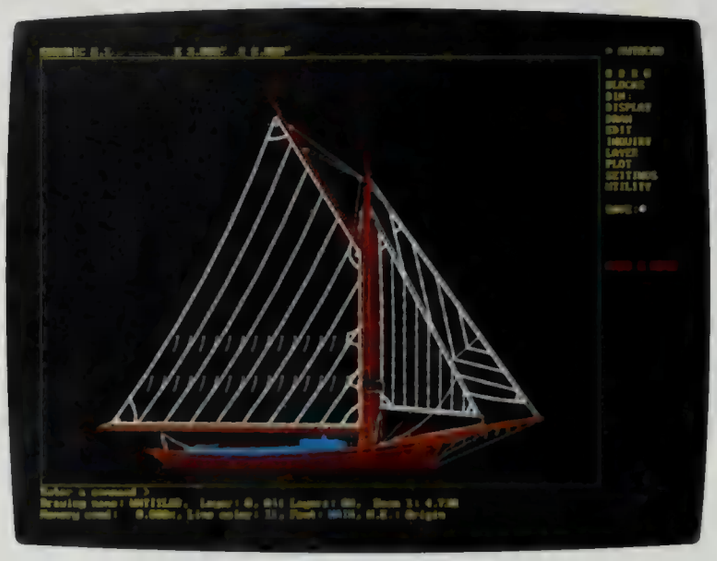
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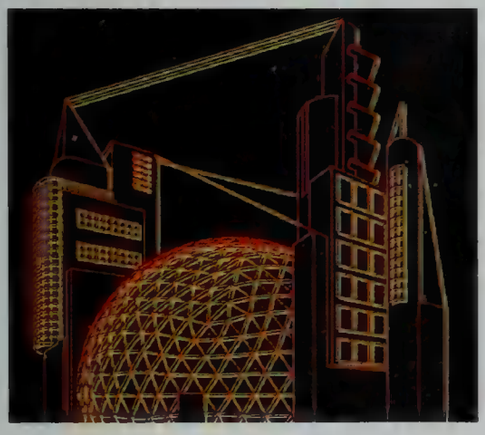
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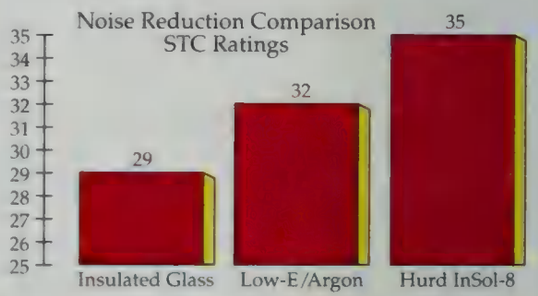
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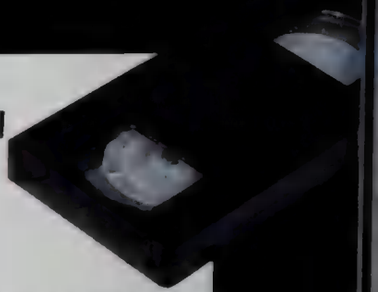
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In This Issue

This is an issue of monuments—large and small—each a repository of aspirations. The 1,522-acre Alameda Naval Air Station, the subject of Building Types Study 710 (page 96), is, for now, a monument to a system of defense made obsolete by events. But, as the architects—asked by RECORD to sketch proposals for Alameda's return to civilian life—point out, its closure gives planners and area residents the opportunity to develop the base into a new extension of the community. Norman Foster's Carré d'Art in Nîmes, France (page 62) and Rafael Moneo's Davis Museum at Wellesley College (page 84)—at first glance aloof monuments—are each side-by-side with other architectural masterworks (the Roman temple in Nîmes and the important early work by Paul Rudolph at Wellesley). The new pairings form cultural centerpieces. Though ancient Korean fortresses inspired Tai Soo Kim's design of a corporate-training facility outside Seoul (page 72), his incorporation of a steep hill and native materials tie his building to its site and local culture. On a smaller scale, Susan Reatig's church in Washington, D. C. (page 78) is a monument to community commitment, while Hodgetts & Fung's offices for Click & Flick (page 92), a West Hollywood model/talent agency, is an appropriately theatrical collage of that city's architecture. This month's Technology Focus (page 108) reports on strategies for thin veneer or "dumb" walls, which, neither mindless nor mute, resolve a complex technical problem and present an appropriate public face. Ultimately, a true monument is not measured by presence alone, but by its ability to mirror community values. *K. D. S.*

Manufacturers' Sources listed on page 135


Mediterranean Light

In Nîmes, France, Sir Norman Foster holds a memorable conversation with the classical.



Carré d'Art
Nîmes, France
Sir Norman Foster and Partners, Architect

English architects have always shown a special fondness for the classical tradition of the Mediterranean, and Sir Norman Foster is no exception. His Carré d'Art in Nîmes, France, a public library and contemporary art museum, engages in a lyrical dialogue with both the adjacent Maison Carrée, a Roman temple from the First Century, A. D., and the region's Mediterranean climate.

Foster was chosen to design the Carré d'Art in a 1984 competition among 12 top architects, including Frank Gehry, Richard Meier, Arata Isozaki, Aldo Rossi, Jean Nouvel, and others. After the competition, Foster characteristically prepared models of 10 different designs before settling on what Foster associate Tim Quick calls "the calmest" of the group: an open, light-filled pavilion of glass walls and slender concrete columns. The building took nearly 10 years to complete, as the city gathered funding and support.

In keeping with the scale of surrounding buildings, half of the structure is underground, "like a ship," says Foster, while the top floor's galleries rise well above the apparent cornice. Four levels of library and museum storage plus two public libraries, including the main reading room, are below grade. A vertiginous, six-story atrium admits daylight into the lowest public levels. It is criss-crossed by open, cantilevered glass-treaded stairs, which soar in dizzying spans from one end of the void to the other, while glass-enclosed elevators rise and fall from various levels.

The building's other dramatic moment comes in its urban setting, as the building addresses itself to the city and the Roman temple. Foster considered the entire plaza around the Maison Carrée as part of his brief, trading the cars which parked there for new outdoor cafés, and repaving the space in the local limestone, of which the temple and much of the city is built. Like the Maison Carrée, Foster's building stands on a stepped limestone plinth, behind a generous portico. The building entrance is located on a corner, in a play of solids and voids which matches the proportions of the side elevation of the Maison Carrée. Under its louvered eaves, the metal portico shelters the projecting volume of the main reading room, which is crowned by a café-terrace with views over the city rooftops, an irresistible terminus for the visitors' spiraling, upward path through the structure.

The experience of entering the building, "bridging" the reading room and passing into the multi-level lobby at the foot of the broad glass stairs, is like penetrating a series of interlocking, transparent volumes whose spatial complexity recalls the best work of Foster's teacher, Paul Rudolph. Diagonal movement toward the corner entry at the back of the building is also encouraged by the plan, a subtle reflection of the diagonal avenues at the front and back corners of the site. According to Tim Quick, the Carré d'Art was not conceived as a high-tech job, in keeping with the city's goal to promote local industries, although details such as the raised limestone floors are typical of Foster's past work.

Throughout the building, sun-control louvers are fixed, except for operable louvers over gallery skylights. The exterior envelope uses conventional thermal-pane glass, framed by concrete columns to match the engaged columns of the Maison Carrée. Much of the glass is silkscreened white, to screen the walls of galleries and services, an illusion difficult to detect in the brilliantly reflected *Nîmois* light.

Not without a little sleight-of-hand, Sir Norman Foster's Carré d'Art is conceived with consummate lucidity and brilliance, a rival worthy of any of his more technically precocious designs. *David Cohn*

Up Close

A campaign for culture. Nîmes Mayor Jean Bousquet, an independent businessman elected in 1983, conceived the Carré d'Art as part of an economic-cultural stimulus package that has also included subsidized housing by Jean Nouvel, a stadium by Vittorio Gregotti, a rather disappointing plaza by Philippe Starck, and art installations in public spaces. Foster's Nîmes office and other architects are currently preparing various special plans for the future growth of the town. Foster has projected a pair of development axes that extend into the countryside from the ancient springs of the Jardin de la Fontaine at the city's center. The city initiatives have been aided by the French Ministry of Culture, and a state decentralization program. The Carré d'Art is clearly the star of this effort, inspired by the Centre Georges Pompidou and the upcoming National Library in Paris. Replacing a 19th-century opera house that burned in 1952, the Carré d'Art faithfully reflects the evolution of public urban life from the Roman forum to our day. Bousquet's advisor on the project, local art collector Dr. Robert Calle, has organized the art museum from scratch, introducing contemporary art to the *Nîmois* in 60 exhibitions since 1985 and laying the groundwork for a permanent collection.

© *Richard Bryant photos*

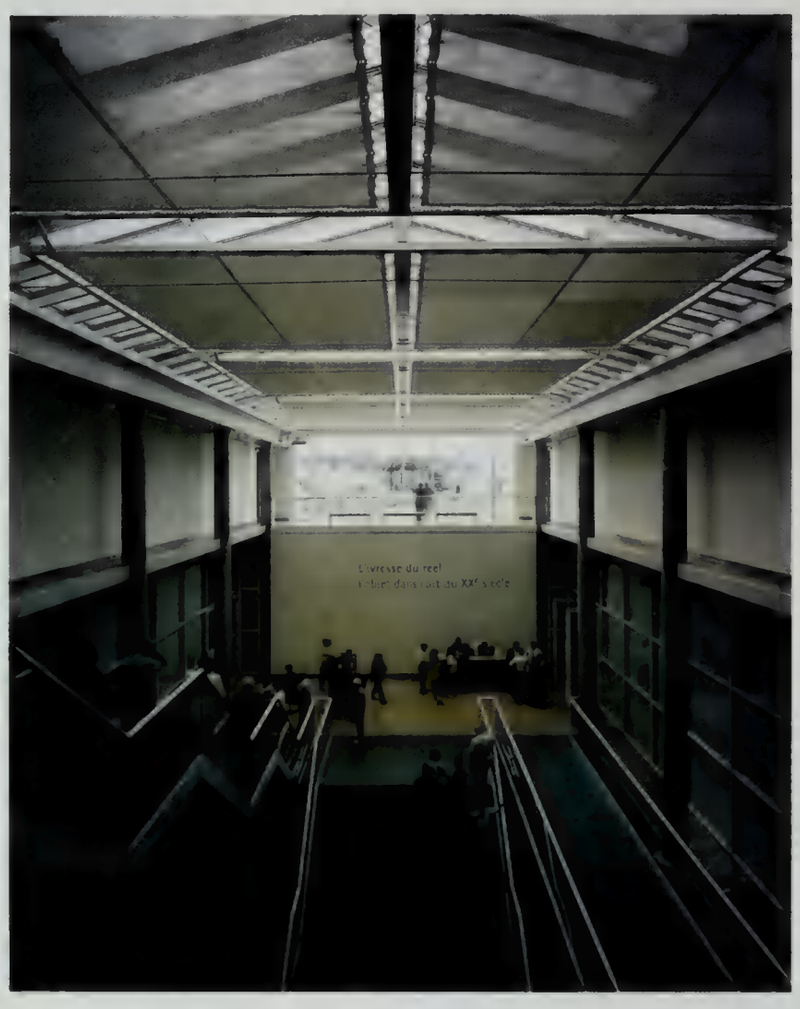


The Maison Carrée stands between two other Roman monuments, an arena still used for bullfights and the ruined Temple of Diana in the Jardin de la Fontaine (above). The plaza around the temple was repaved, tracing the Roman forum which once surrounded it. The facade of the new building matches the proportions of the temple, its glass skin echoing the play of horizontal and vertical divisions. The louvered portico shades the library's main reading room and a rooftop café.





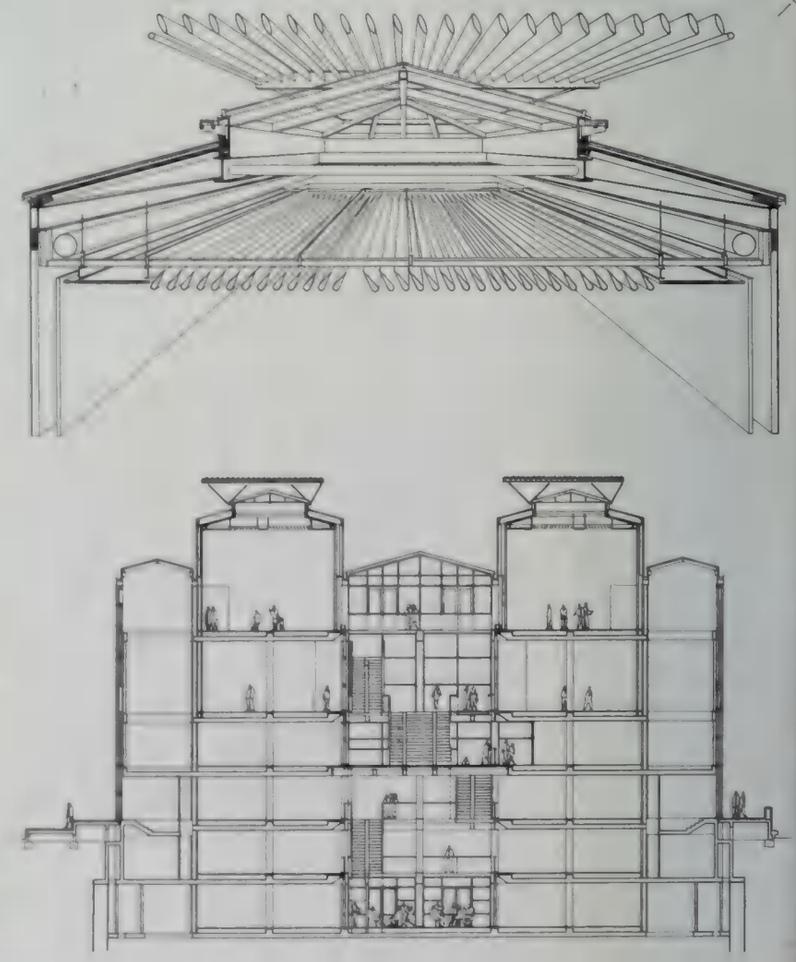




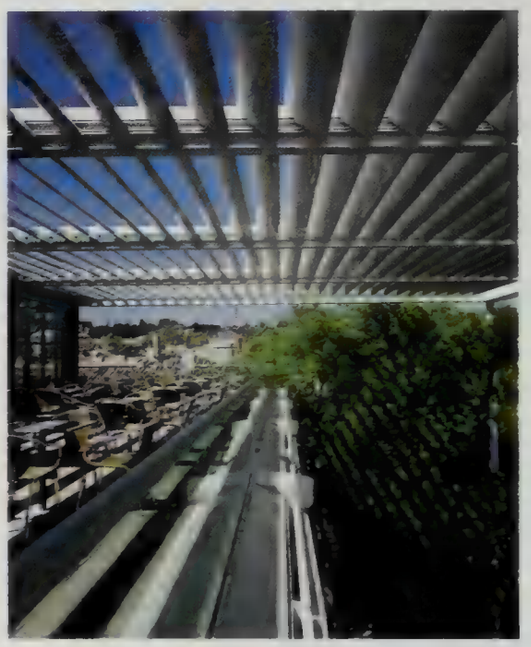


The atrium drops six stories to light underground levels. From the lobby (bottom left), a glass-treaded stair rises to the museum (top left), amid secondary stairs and bridges (opposite). Recessed stringers, cantilevered from columns or spanning the space, support the stairs. The open entry level is a rich weave of space and light (above). The gallery skylights filter sunlight via mechanized louvers above the glass and adjustable diffusing vanes below (drawing below). Light fixtures are attached directly to interior vanes.









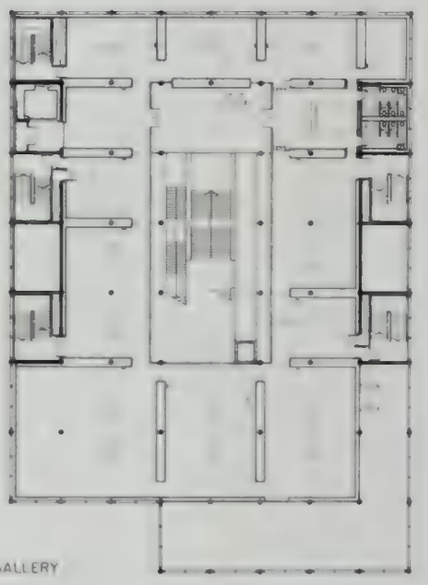




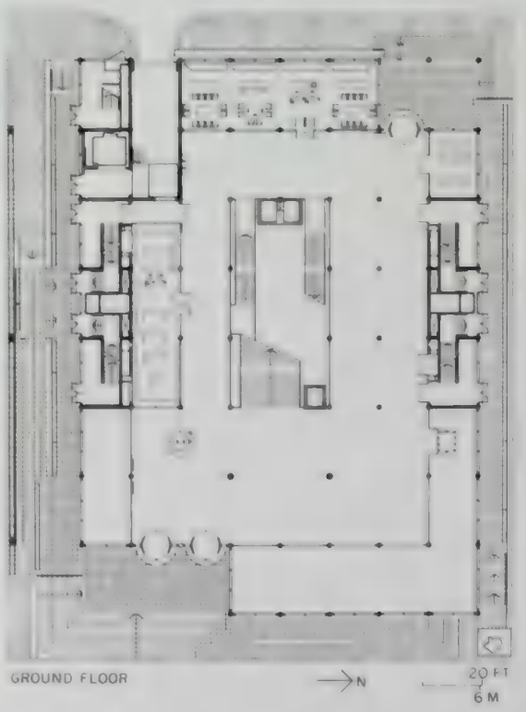




UPPER MEDIATHEQUE



LOWER GALLERY



GROUND FLOOR N 20 FT 6 M

As in many of Foster's buildings, the services and emergency stairs are pushed to the two long sides of the plan. As the principal point of interior reference, the atrium mixes rather than separates the building's diverse functions. Sections of the 5 by 7 structural grid are selectively "erased" to create larger volumes.

The cafe under the louvered portico (1) has views over the rooftops of Nîmes. Stairs (2) meet at a mezzanine-level bridge connecting to museum offices and the children's library. The glass walls of the first museum floor (3), home to the permanent collection, overlook the atrium. One of the top-floor galleries (4), which is dedicated to temporary exhibitions and sized for extra-large works, is supplied by air brought up from the floor through the walls. Other mechanical services are hidden above the diffuser vanes of the skylight.

Opposite, the multi-story lobby overlooks the grand L-shaped volume of the reading room, with furniture by Norman and Sibha Foster. Air-supply grilles punctuate the raised limestone floor.

Credits

Carré d'Art (library and contemporary art museum) Nîmes, France
Owner: *City of Nîmes; Jean Bousquet, Mayor*
Architect: *Sir Norman Foster and Partners, Architect—Sir Norman Foster, principal-in-charge; Jean Pierre Genevois, Alex Gounaris, project team*
Consultants: *Ove Arup and Partners; OTH Marseilles (structural); OTH Mechanical (mechanical); Claude and Danielle Engel (lighting); Optime (acoustical); Thorne Wheatley (quantity surveyor)*

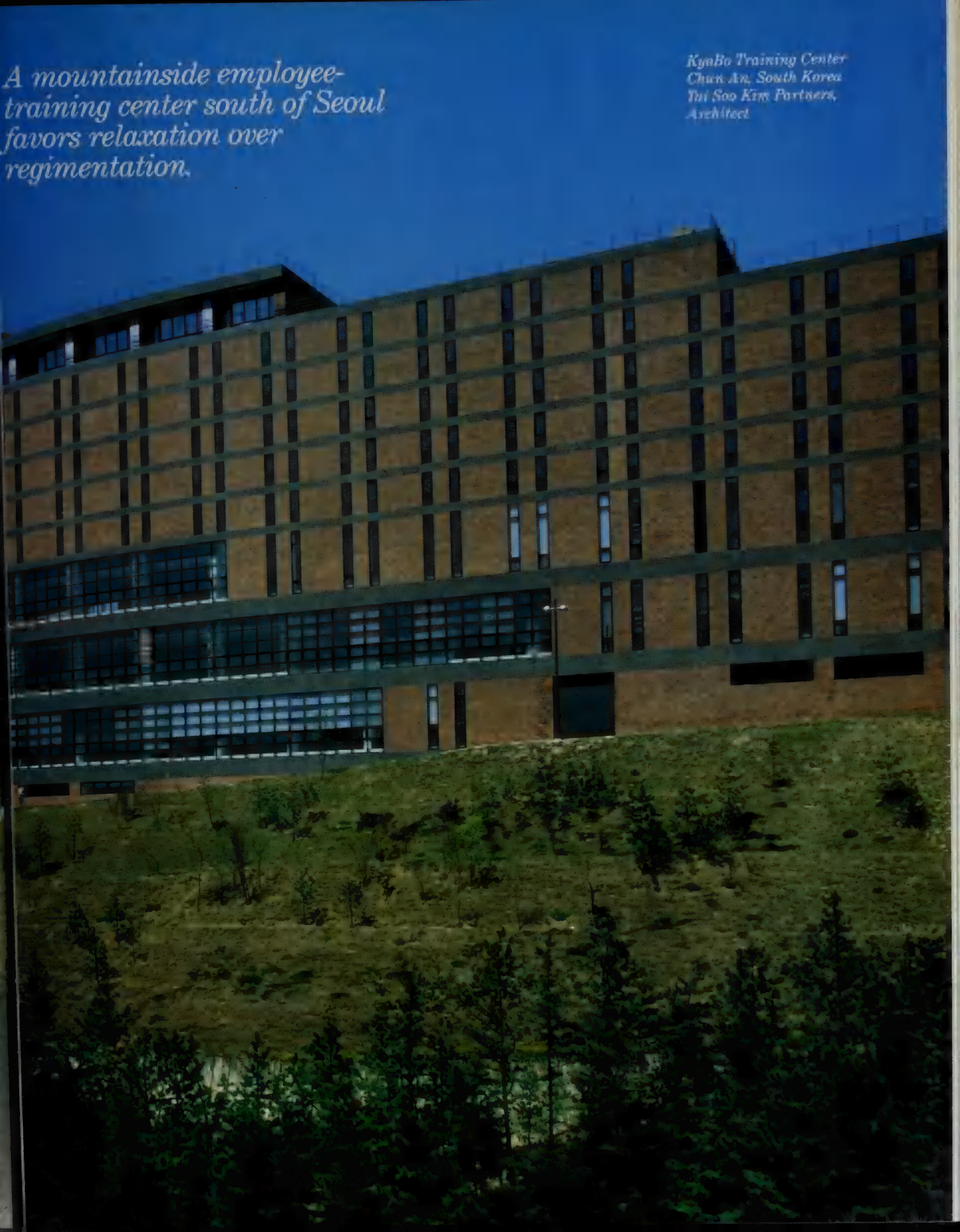


Honorable Retreat



A mountainside employee-training center south of Seoul favors relaxation over regimentation.

KyuBo Training Center
Chun An, South Korea
Tai Soo Kim Partners, Architect



This sprawling employee-training facility, designed by Hartford, Connecticut-based Tai Soo Kim Partners for the KyoBo Insurance Co., reveals itself slowly to those driving along the area's winding roads. Only when the road swings around to the rear of the site does the building come into full view—a sinuous brick-faced structure with a 105-foot (32-meter)-wide rectangular opening punched through to the other side. Before checking in, guests can walk through the opening and onto a 50-foot (15-meter)-deep terrace paved in local pink granite and commanding a view of a small lake and the valley below. "I wanted the entry to come as a surprise," says Tai Soo Kim, "and to provide a feeling of exhilaration."

The dramatic entrée to this 300,000-square-foot (28,000-sq-m) facility is the first sign that it is not one of those military-style compounds set on a sheared-off mountaintop and filled with enthusiastically shouting "salarymen" that typifies the employee training-center genre. Instead, says Kim, KyoBo's chairman "sought to create a retreat on this steep mountainside" for his 50,000-strong sales force—which is up to 70 percent female and would train in five-day rotations of 600. "He wanted to let his salespeople come and relax and enjoy a beautiful setting while they train," notes the Korean-born architect.

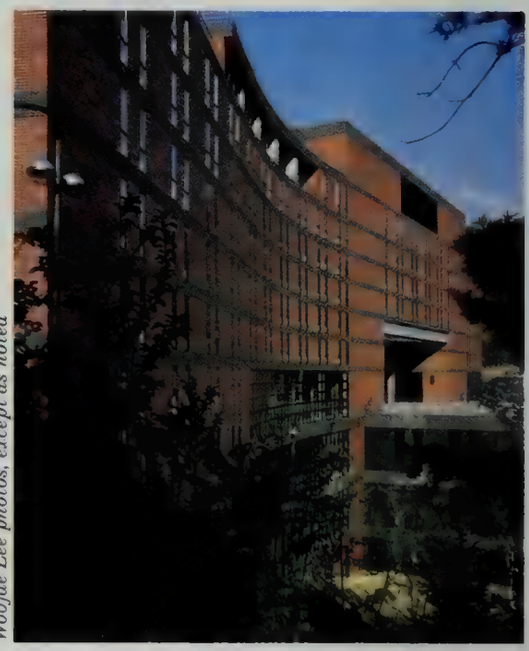
To minimize the building's bulk and link it as closely as possible to its site, Kim fit the center's two major components neatly into the terrain. The main building, clad in a deep red brick meant to recall traditional Korean fortifications, curves in a serpentine wall that follows the contours of the mountain. Bands of gray brick delineate the dormitory floors and tie together a facade composition interrupted by vertical rows of floor-to-ceiling windows. While much of the building serves as housing—most rooms are double-occupancy, with some four-person accommodations—the ground and lower levels contain lounges, cafeterias, and administrative areas. Openings along the top level of the dormitory express an executive banquet hall, which is served by a nearby kitchen, one of three in the training complex.

Cutting through the dormitory, the entry-level platform moves through the building and cascades down the mountainside in a series of four darkly glazed projections that house a lounge, cafeteria, study areas, and gymnasium. The steeply terraced projections are accessed indoors by a grand stair running down the middle. In the main building, glass wings enclosing corridors and lounges also look out to the south and the valley below. On the north side of the building, the architects tucked a 450-seat auditorium beneath the main driveway.

Building the concrete-frame complex on its rugged site 50 miles (80 km) south of Seoul made for what Kim calls "tough construction." The architect explains "we had to erect a special crane in the middle of the site and build from the bottom up, then dismantle the crane and finish construction." Kim used mostly native materials, including the exterior brick, which is carried through to the stripped-down interior spaces.

"The chairman is very proud," says Kim. "He shows the center to [illegible] companies to prove that you can build a training center [illegible] army camp." *Peter D. Slatin*

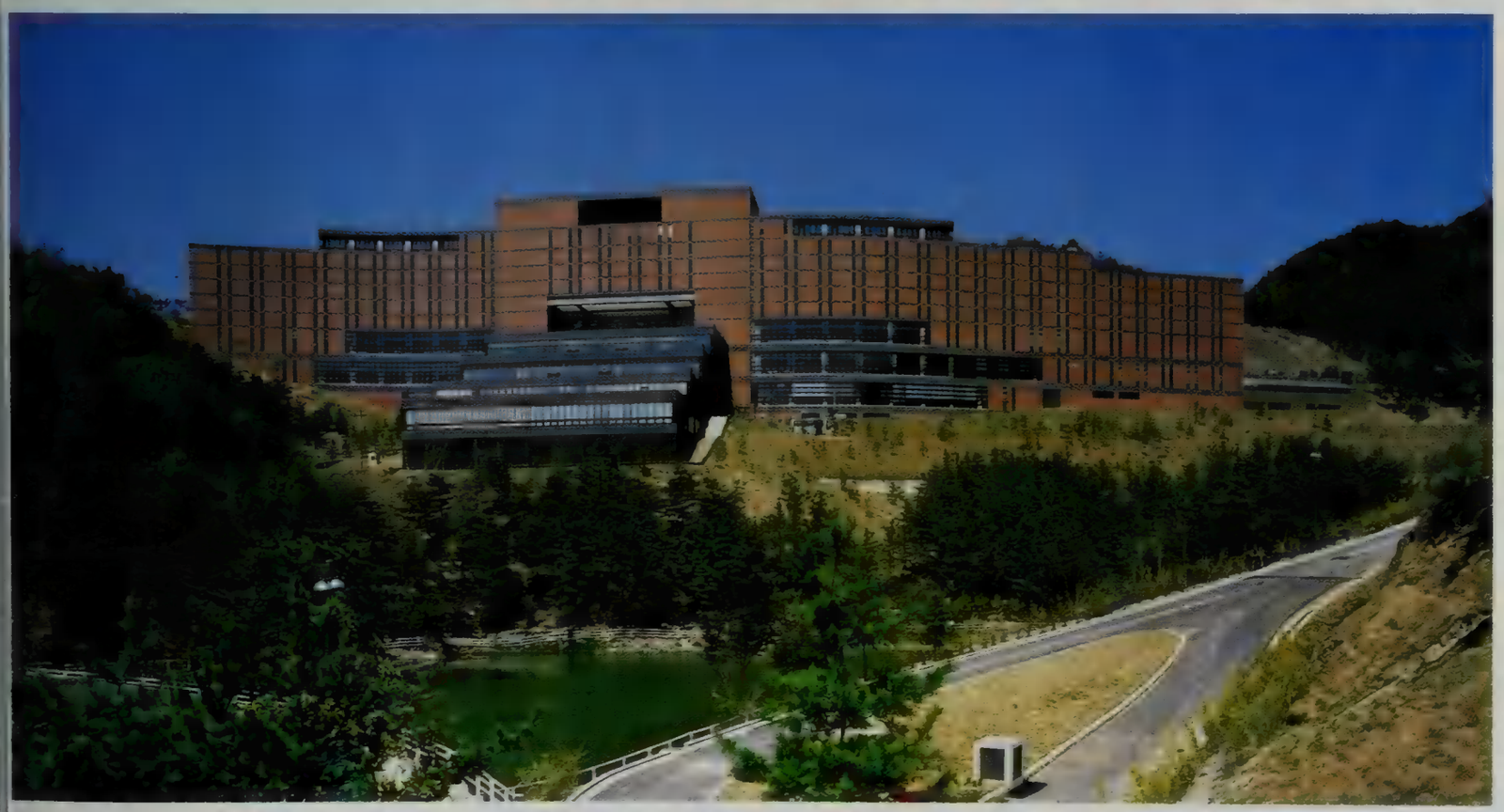
Woojae Lee photos, except as noted

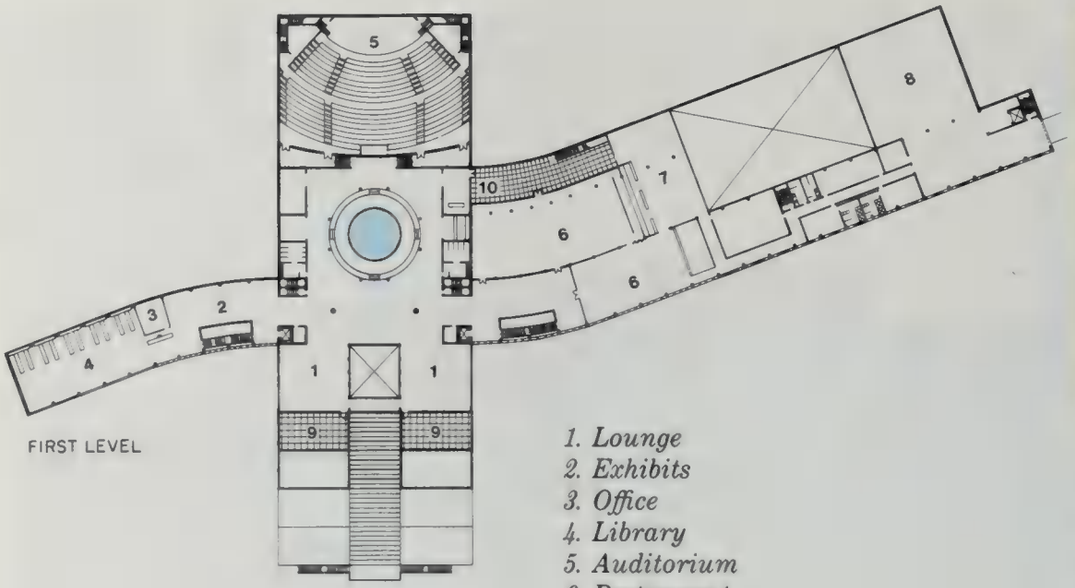




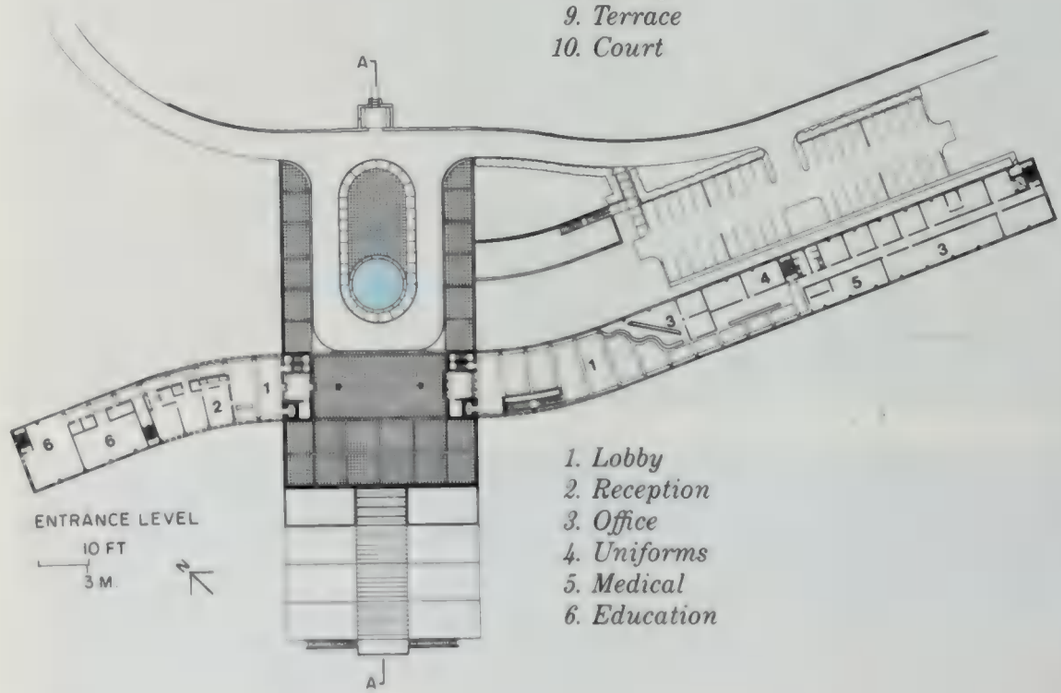
A through-building gateway (above) leads from the front of the building on the north (opposite top) to a broad south terrace overlooking the valley. The stepped terraces projecting from the south facade (opposite top and bottom) house a lounge, cafeteria, classrooms, and gymnasium, and are flanked by long, glassed-in corridors in the main building.



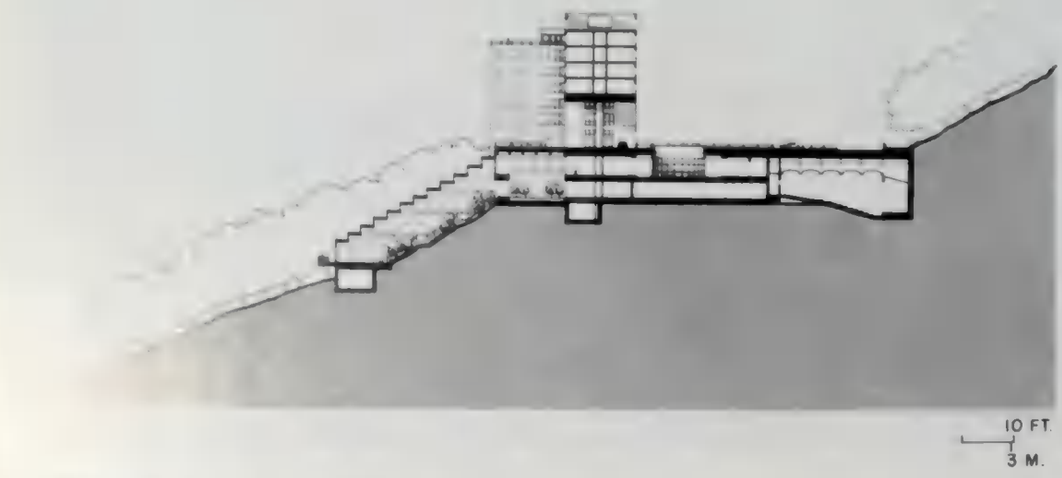




1. *Lounge*
2. *Exhibits*
3. *Office*
4. *Library*
5. *Auditorium*
6. *Restaurant*
7. *Kitchen*
8. *Storage*
9. *Terrace*
10. *Court*



1. *Lobby*
2. *Reception*
3. *Office*
4. *Uniforms*
5. *Medical*
6. *Education*





Public spaces, such as the main lobby (opposite top) and the cafeteria (opposite bottom) were kept simple to handle large numbers of people and to highlight mountain scenery visible through broad expanses of windows. Furnished only with straw mats, the meditation room (above) is the one space with a clearly Asian feeling. Although the building is 300,000 sq ft (28,000 sq m), its serpentine plan (left) and siting up against a mountain (section left) help reduce its apparent mass. Visitors enter at a middle level, with four floors of classrooms, lounges, dining areas, and common spaces below, and six floors of housing above. On the main level, administrative functions are on the west, while the lobby and reception area are on the east. A 450-seat auditorium is one story down.

Credits

KyoBo Training Center
Chun An, South Korea
Owner: *Daehan Kyoyuk Insurance Co.*
Architect: *Tai Soo Kim Partners—Tai Soo Kim, chief architect*
Associate Architect: *Shim Wan Associates*
Engineers: *Saen Structural Engineering Co. (structural); Sanshin Inc. Engineering Co. (mechanical); Moon Y. H. Electrical Planning Co. (electrical)*
Landscape Architect: *Daewoo Engineering Co.*
General Contractor: *Daewoo Construction Co.*



Tai Soo Kim photos this page and opposite



Labor of Love



Metropolitan Community Church
Washington, D. C.
Suzane Reatig, Architect

The Universal Fellowship of Metropolitan Community Churches has a hundred-year-old history of compassionate service. This recent church brims with openness, light, and hope, extending the MCC's tradition into the context of the 1990s and serving its mostly gay and lesbian congregation that draws its members from all over the Washington, D. C., region.

This church is the brainchild of a progressive board, two pastors (Larry Uhrig and Candace Shultis), and a persevering architect, Suzane Reatig, a young practitioner trained in Israel. Without her four-year commitment to the project, innovative methods for getting the most building out of restrictive zoning, and rigorous marketing, the structure might never have been built (see *Up Close*).

The ostensible program called for a sanctuary to accommodate a congregation of 300, with overflow space in a walled yard also used for staff parking. The real, if unwritten, program demanded a sanctuary that was open, congenial, acoustically suited for a highly music-oriented service, one that encouraged fellowship and recognized the nature of its members, whose AIDS-occasioned mortality rate has hovered like a pall over all its work and worship.

Limited by a $1.2-million budget for 13,400 square feet of space, Reatig decided to eschew decoration and to use a spare vocabulary of steel, aluminum, and glass, with a counterpoint of light-red concrete block, to obtain an atmosphere of lightness, clarity, awareness of the passing sun (the main glass areas face west and south), and of the panorama of sky, clouds, trees, and flying birds in view from every seat. Four steel bowstring trusses 16 feet on center support a steel deck in the form of a shallow vault, which due to a clever use of glazing of different degrees of reflectivity, extends the appearance of the vault to twice its real length at certain times of the day (see photo, top right, page 81). But as a focus, a stretch of clear glass behind the altar spells out a cross, a simple but highly creative way of using technology for symbolic use.

Since all other ornament had to be derived from the materials themselves, connecting details were worked out with great care, especially at the points where the turnbuckle bracing connects with the steel support columns (Reatig had wanted costlier tube columns but had to settle for the cheaper flanged H-columns), and in the connections between steel structure and split-block masonry.

The plan itself (two stories and a basement, the maximum allowed by zoning) is a classic example of Louis Kahn's served-and-service spaces, with an L-shaped server-space of offices, library, and circulation functions embracing the nearly square sanctuary.

It is only in the heavy-set street-level entrance that Reatig's sure touch with materials stumbles. The shallow archway spanning the curved exterior elevator shaft is awkward, and the entrance is mean. In truth, on a warm sunny day, the side doors on the stone-block-paved parking side are thrown open as a grand welcoming gesture.

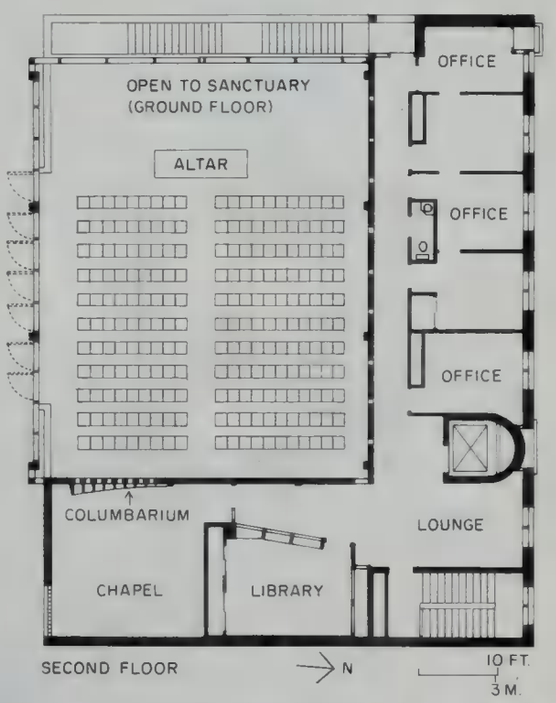
The building is a hit with the congregation, architects, and students. A group of visiting students told Reatig that this was "the first modern building in Washington." Because of the play of light, one member says that "every time I come to the church, it's like I saw it for the first time." And best of all, a worshipper told Reatig on the day of dedication: "Thank you. This building is us."
Stephen A. Kltment

© *Robert Lautman photos*





MCC is sited in a tree-lined residential neighborhood near downtown Washington (top). The principal entrance (above) is split-face unit masonry. The upper-level plan (below) shows a Kahn-inspired scheme of server-and-served spaces, with server spaces in the L embracing the almost square 300-seat sanctuary. A row of doors on the south side of the sanctuary leads to a small parking lot paved with 3-inch-square blocks separated by thin grass strips, used on clear days as an extension of the sanctuary.





Up Close

From vision to occupancy. Architect Reatig, who arrived from Israel in 1975 and worked for several architects around Washington, was introduced to MCC's selection committee by an associate who was a member. As the committee already had four proposals, and Reatig had never done even a multiple assembly building let alone a place of worship, she was an unlikely choice. She did, however, have unconventional ideas, chemistry, and enthusiam. Yet, even after her selection, it wasn't all smooth sailing. Pastor Uhrig had very traditional ideas of what a church should be—a dark space that allowed control through lighting, stained glass to add atmosphere, and a formal seating arrangement with a nave leading to a raised altar. Reatig was able to overcome these preconceptions and carry out her vision. MCC received added value from Reatig's services. For example, by convincing the building department that the cars-to-seats ratio should be calculated on the basis of actual seating area, not total area, parking was reduced to 15 spaces from 30, which would have eaten up half the site. She spent over half her fee on daily field visits to make on-site decisions about such details as floor-tile patterns and placement of cabling to preserve the pristine design.







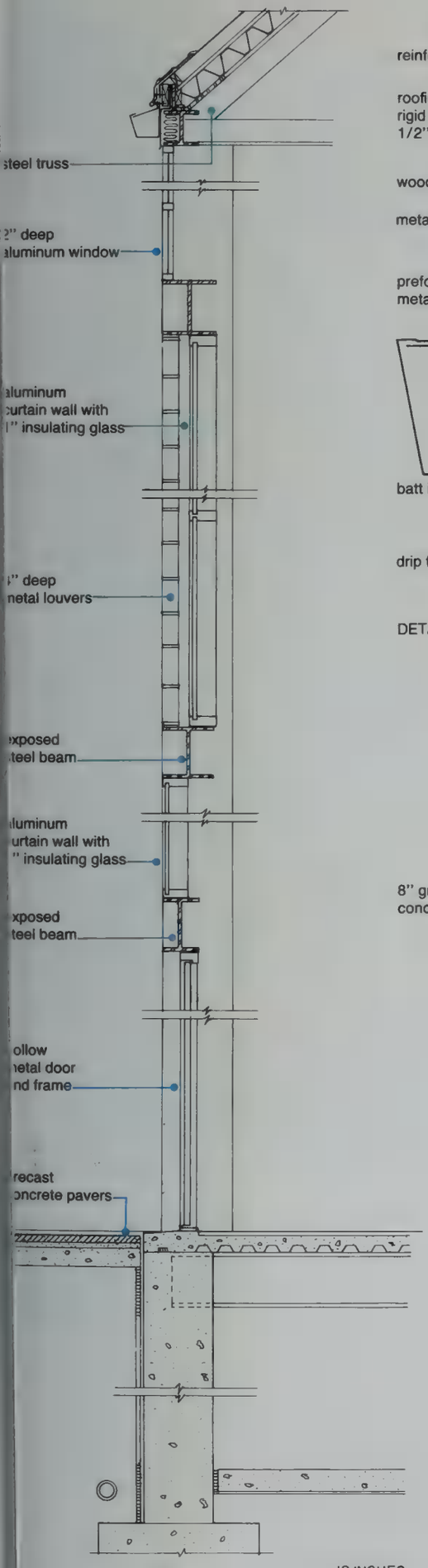
Light pours into the glassed-in sanctuary during a service (opposite). Lighting varies dramatically at different times of the day (right). The columbarium (above) opens out over the sanctuary, a deliberate gesture, as Reatig puts it, to have deceased members of the congregation take part in services.

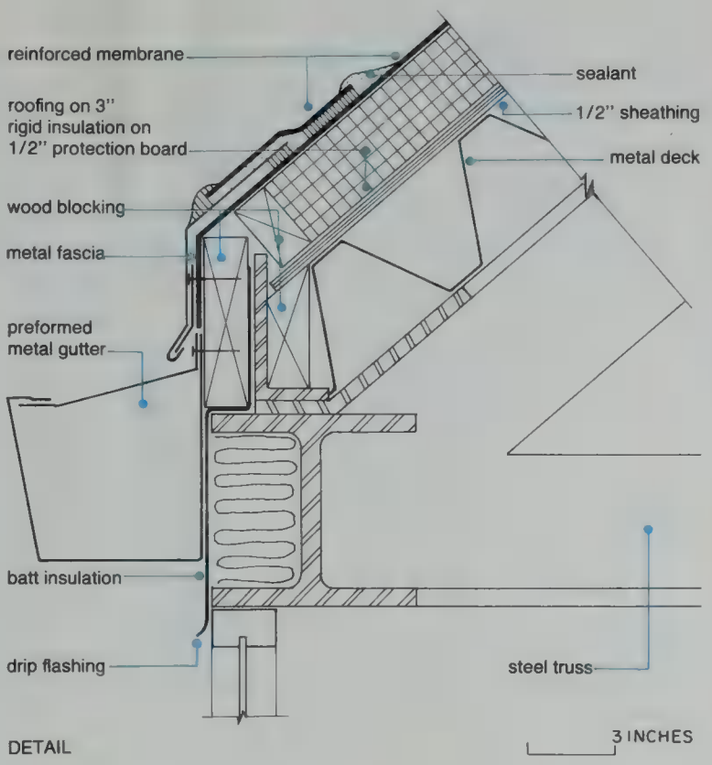


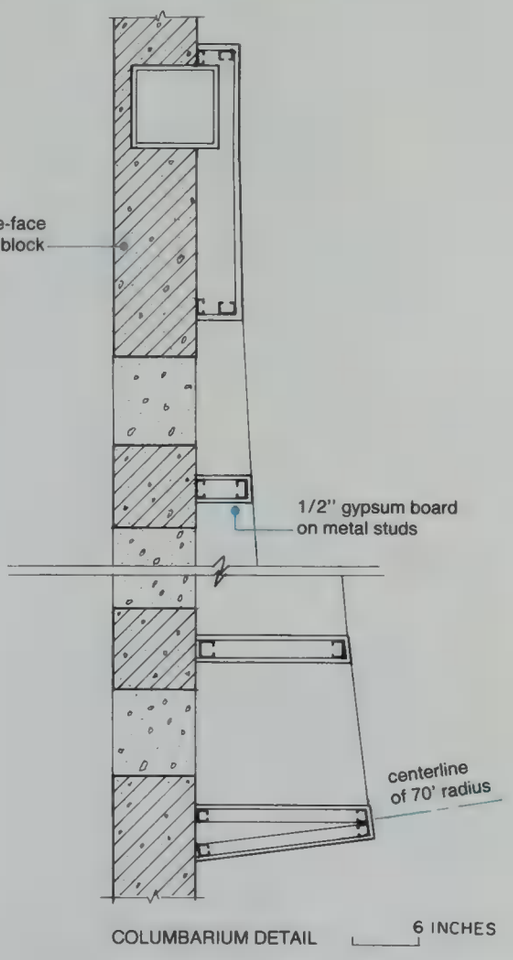


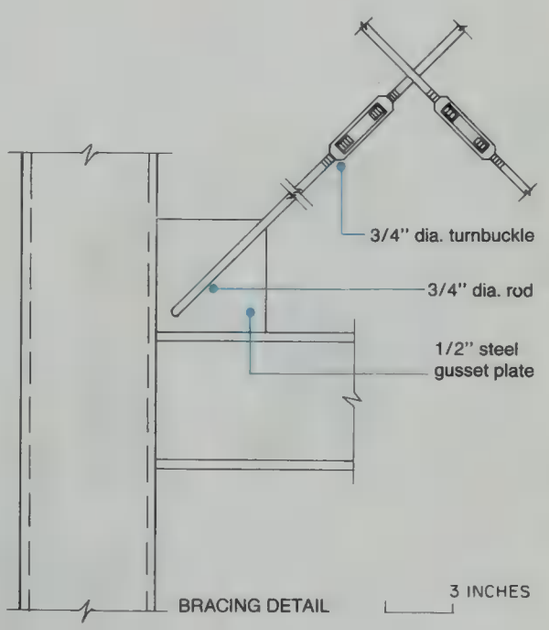












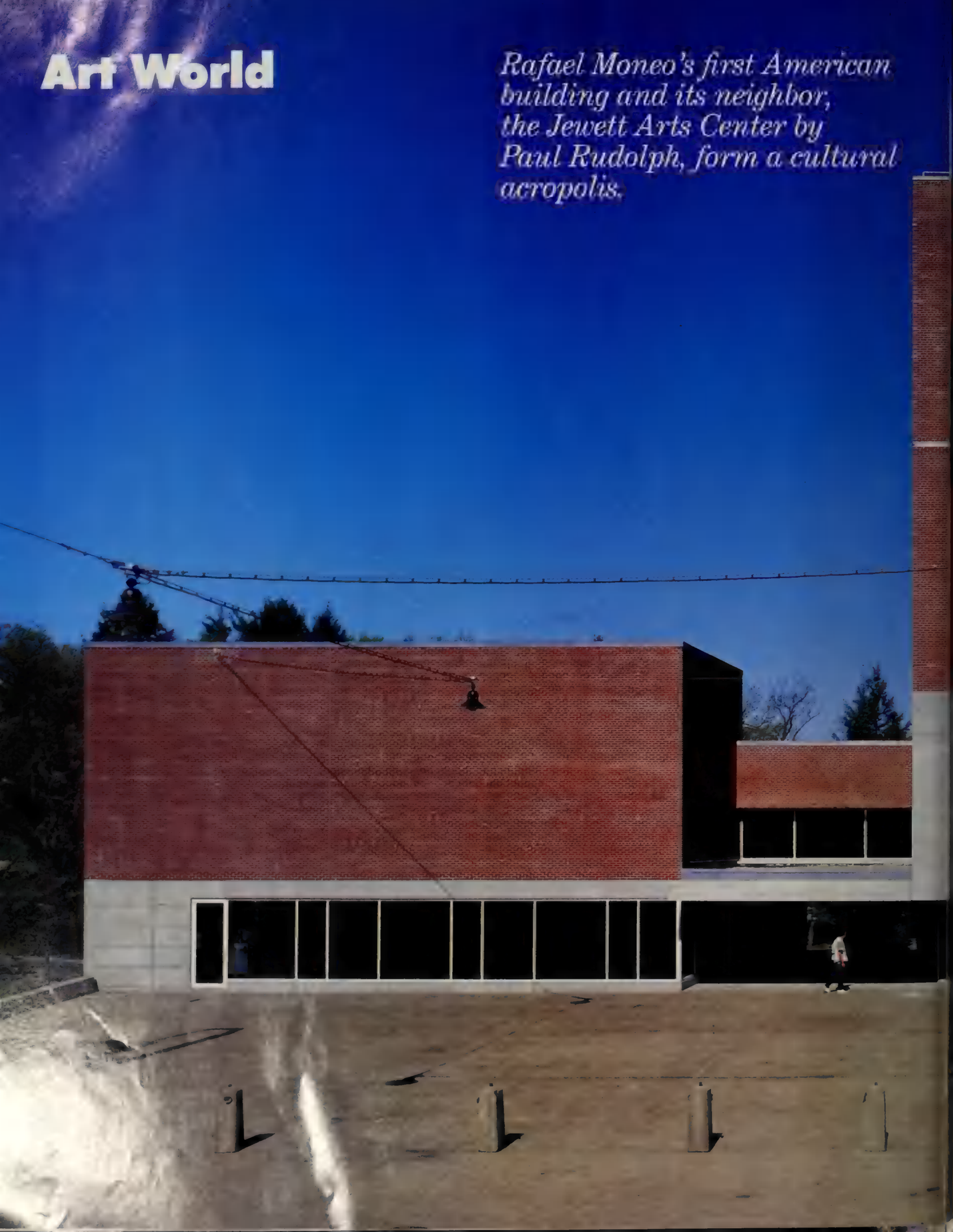
The structural system consists of 40-foot bowstring trusses 16 feet on center, resting on wide-flange columns. The enclosure is a glass and aluminum curtain wall, with glazing in various degrees of reflectivity. The turnbuckle cross-bracing is echoed across the hall by a high-relief pattern of split block (opposite, bottom left). Lighting is a system of uplighting at the perimeter and downlights attached to the bottom chords of trusses. Sound is amplified, but a rather high reverberation time favors music over speech. The columbarium is built on a curve to accommodate varying sized urns (detail, left).

Credits

Owner: *The Metropolitan Community Church of Washington, D. C.*
Architect: *Suzane Reatig Architecture*
Engineer: *McMullan & Associates (structural), Setty & Associates (mechanical), Macris, Hendricks P. A. (civil)*
Consultant: *Melinda Morison, lighting*
General Contractor: *Harvey Construction Company*

Art World

Rafael Moneo's first American building and its neighbor, the Jewett Arts Center by Paul Rudolph, form a cultural acropolis.





Davis Museum and Cultural Center
Wellesley College
Wellesley, Massachusetts
Rafael Moneo Architect
Payette Associates, Associate Architect

© Scott Frances/Esto photos





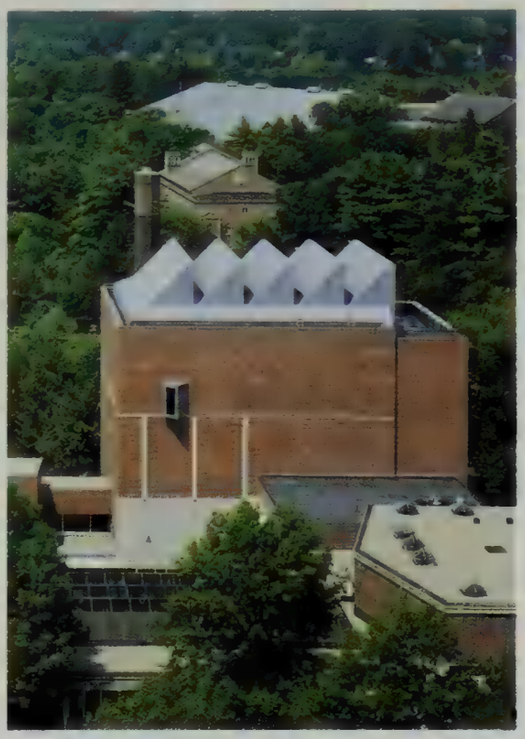
It entered on tiptoe," says Rafael Moneo, referring to the way he nestled the 61,000-square-foot Davis Museum and Cultural Center within Wellesley College's picturebook academe, complete with Gothic Revival main quadrangle and Frederick Law Olmsted landscape. Despite a quiet entrance, the building commands attention. Its cube of galleries dominates a hilltop site and taut facades of steel-reinforced brick and sand-blasted concrete frame an austere courtyard that might have inspired painter Giorgio de Chirico (previous pages). The Davis Museum is not only the Spanish architect's (and former chairman of Harvard's department of architecture) American debut, it is also Wellesley's first building devoted to displaying works from its impressive 5,000-piece permanent collection, previously on limited view next door in the 1958 Jewett Arts Center, an important early work of Paul Rudolph.

Yet Moneo's building is no upstart newcomer. In fact, Moneo configured Davis to continue the pedestrian thoroughfare of Rudolph's grand Italianate outdoor stair, which before culminated in a parking lot. Now the route extends beneath second-floor galleries, leading to a road looping the campus. This belated fulfillment of Rudolph's overall site strategy is only part of Moneo's homage to his American colleague. "I wanted to enhance the values of the Rudolph building," explains Moneo.

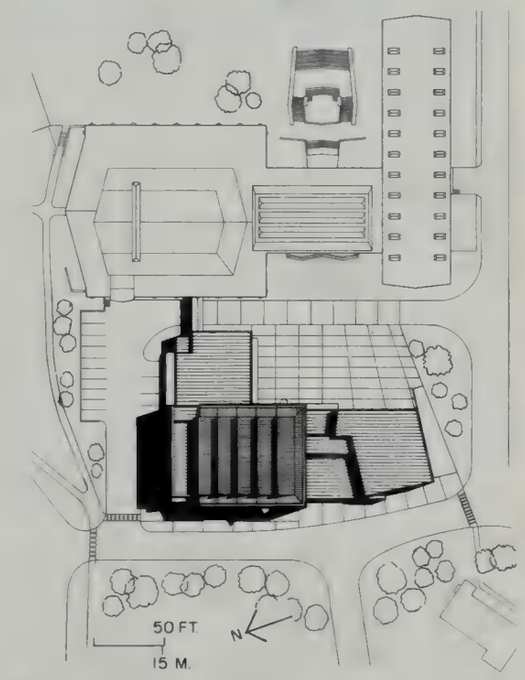
Toward that end, he stacked the galleries in the north corner of the site, placing a movie theater to the south and museum offices and study rooms to the east in lower volumes that reach toward Jewett. While Moneo's use of brick as principal cladding is in keeping with the Wellesley tradition, his choice of ruddy blocks arranged in a common bond pattern with unusually tight 1/4-inch-thick horizontal white mortar joints emphasizes Davis's squat density. Along the plaza, an unmuseum-like glass-and-steel storefront and band of office windows screened by a concrete canopy echo the narrow openings and sunshades of Jewett. Moneo conceived the plaza in between as a giant outdoor room that he lit from above by suspending fixtures from wires.

Inside, Moneo continues what Davis Museum director Susan Taylor refers to as the architect's "gentle nudge to accepted canons of museum design." A prominent central staircase is eschewed in favor of a hidden but still dramatic passageway: maple-clad walls line a narrow 5-foot opening. The effect of compression is offset by the gentle rise of 4- to 6-inch-high concrete risers (page 88). Together, the confined space, gradual slope, and modest materials demonstrate Moneo's contention that "neutral architecture doesn't prevent spatial complexity."

Galleries are overlapping spaces in plan and section, allowing visitors to move through areas devoted to specific artistic periods continuously aware of the range of the encylopedic art collection on display elsewhere. "I don't like museums that force a specific itinerary," says Moneo. The architect paid particular attention to proportion—main galleries are roughly twice as long as they are wide—and to the detailing of surfaces—stainless-steel projecting edges atop power strips give drywall planes a crisp edge. But drama is not sacrificed for simplicity. From the moment you enter the second-floor gallery, you perceive interlocking spaces bathed in daylight and your eye is always drawn up 60 feet toward the five rows of clerestory windows that form a serrated, lead-coated copper crown. By the time visitors reach the top floor sculpture gallery (pages 90-91), there's no doubt that Moneo has realized his true intent: creating "a kingdom of light." *Karen D. Stein*



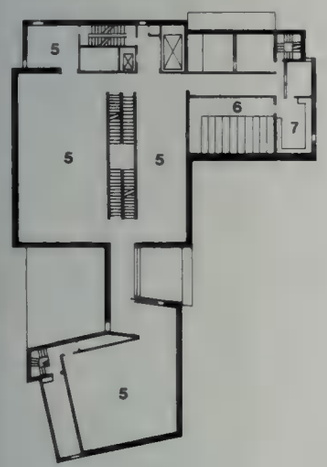




Moneo's museum is west of Paul Rudolph's Jewett Arts Center (site plan). Lead-coated copper-clad clerestories echo Jewett skylights (top and opposite), and a concrete plaza connects the buildings (above).

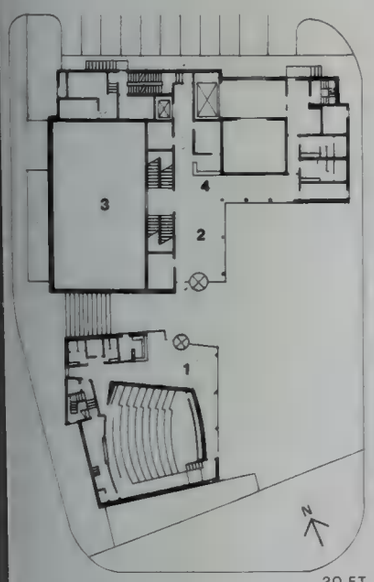


A compressed 5-foot-wide staircase links galleries (plans below and photos opposite and top right). Stairwell walls are clad in maple panels coated with polyurethane, giving the effect of perpetual sunlight. Concrete risers of 4- to 6-inch heights create a gently sloping promenade through the museum. Glass balconies overlook galleries (bottom right). Daylight is supplemented with fluorescent ambient lighting and incandescent spots; fluorescents are also grouped in "roll bars" mounted beneath clerestory windows.



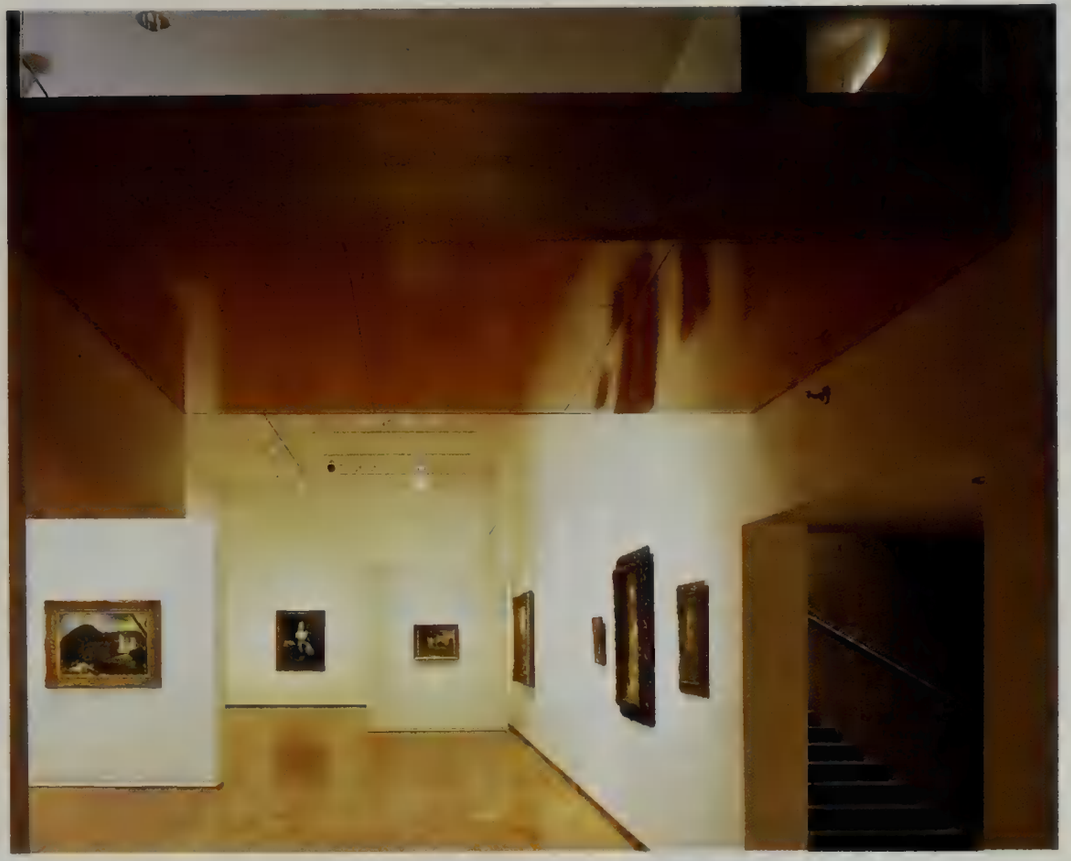
SECOND FLOOR

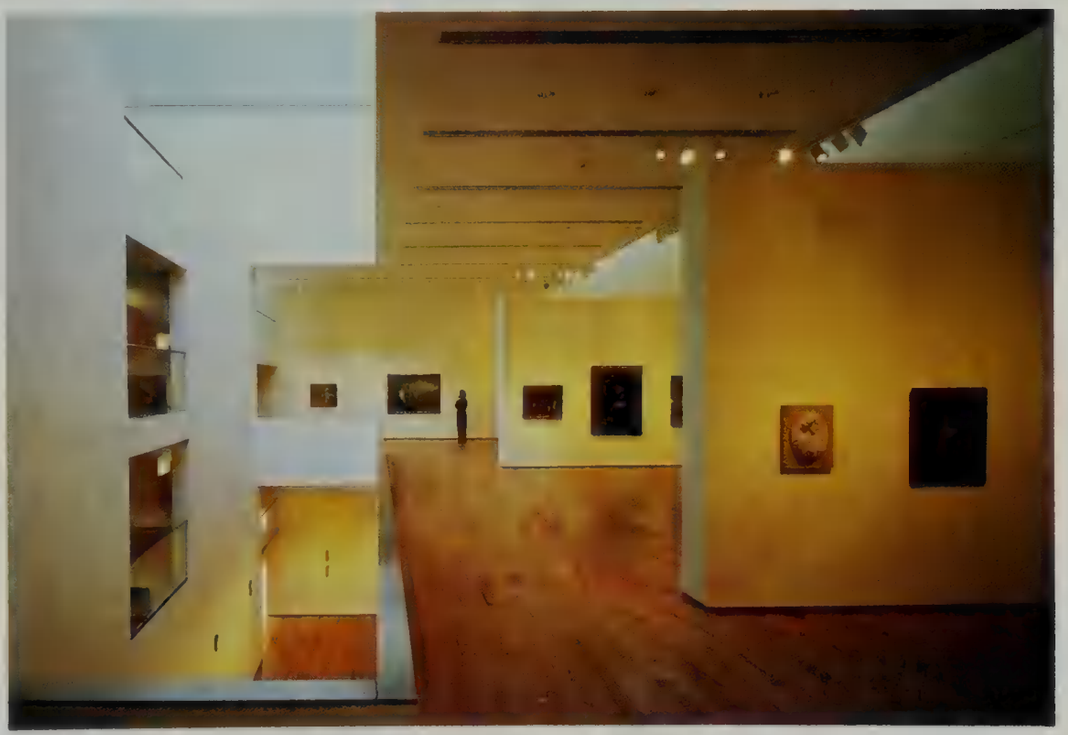




FIRST FLOOR

20 FT
6 M





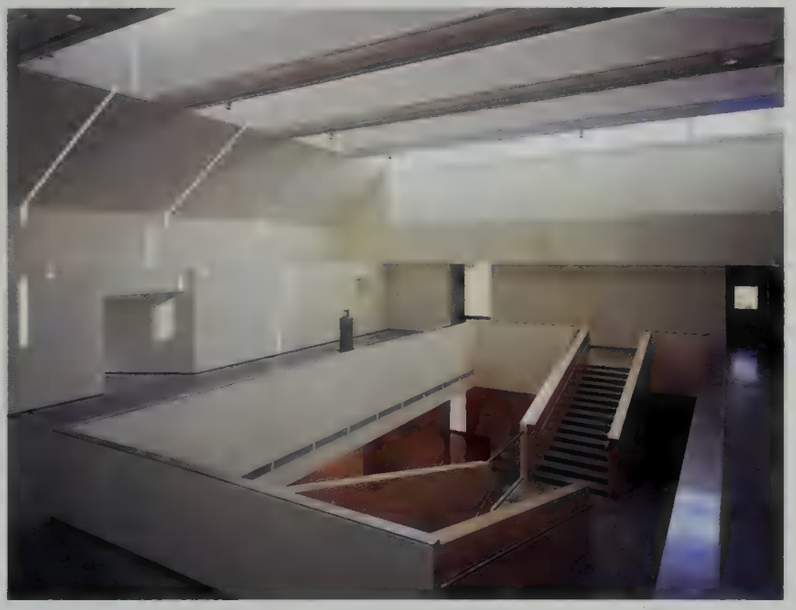
1. *Theater*
2. *Lobby*
3. *Open to temporary exhibition space below*
4. *Information desk*
5. *Gallery*
6. *Archives*
7. *Photography study room*

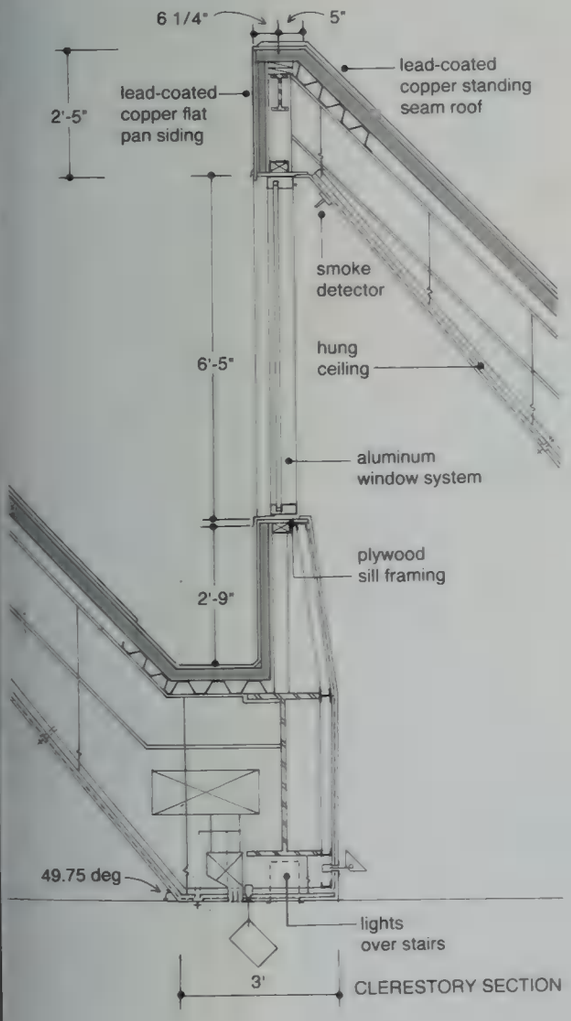


Up Close

Clerestories. Davis Museum director Susan Taylor is familiar with curatorial and conservation-minded arguments against admitting daylight into exhibition space. At Davis, however, Taylor and architect Rafael Moneo favored top lighting, opting for north-facing double-paned clerestory windows with tinted coatings that transmit 60 percent of visible light, an appropriately "conservative solution" according to Taylor. Top-floor galleries are 7 1/2 feet from perimeter walls; the architect's studies indicated that the distance was enough to soften the rake of sunlight on artwork hanging below. Fluorescent fixtures mounted in bars beneath the clerestory windows wash the upper reaches of the space at night.







Credits

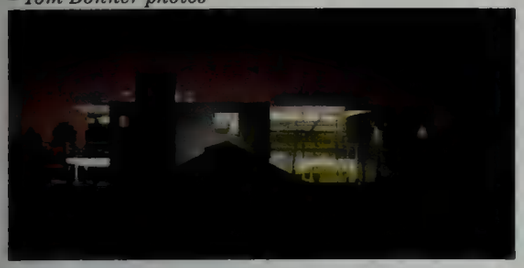
Davis Museum and Cultural Center
Wellesley College
Wellesley, Massachusetts
Architect: *Rafael Moneo Architect—Rafael Moneo, principal-in-charge; Victoria Kiechel, project architect*
Associate Architect: *Payette Associates—Thomas Payette, George Marsh, principals-in-charge; Scott Payette, project manager; Paula Byers, Dian Love, interior designers; Lauri Phelps, assistant*
Engineers: *Le Messurier Consultants (structural); McPhail Associates (geotechnical); John Altieri Consulting Engineers (mechanical/ electrical/ plumbing); J. R. Andrews Survey & Engineering (civil)*
Consultants: *Fisher, Marantz, Renfro, & Stone (lighting); Chapman Ducibella Associates (security); Acentech, Inc. (acoustic); Carol R. Johnson & Associates (landscape); Andrew Chartwell & Company (cost estimating)*
General Contractor: *Richard White Sons*

Casting Castle

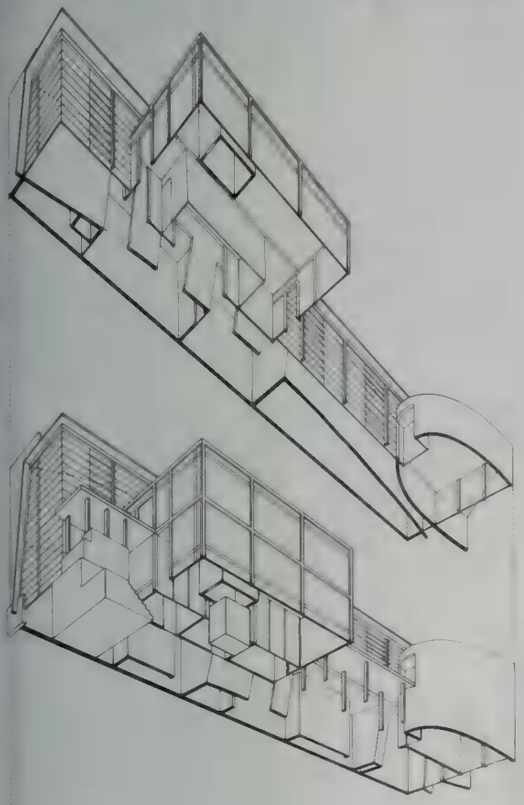
Chick & Flick
West Hollywood, California
Hodgetts & Fung, Architects

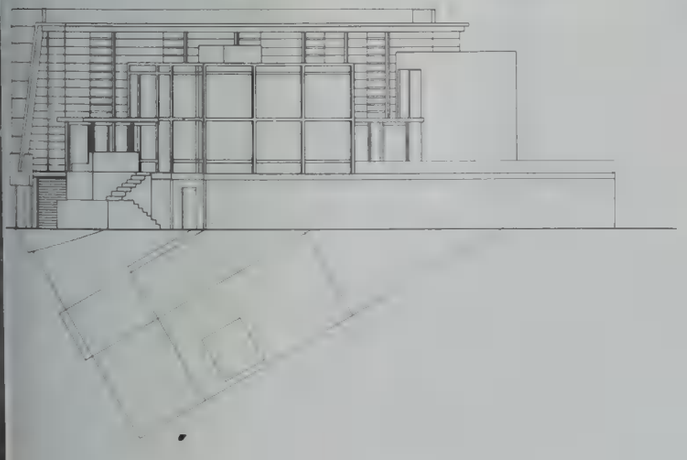


Tom Bonner photos









Noises off: "Get him into Gus's new movie... Who's his agent? Get me that shot!" Alan Mindel, president of the the Flick Talent Agency, is an unseen voice yelling through the windows, doors, and passages of the compact castle that houses his agency and its twin, the Click Model Agency. His voice echoes through the elegantly elongated spaces and bounces off stucco, glass, metal, and wood surfaces. More messy than glamorous, this building contains all the excitement of Hollywood in so few square feet that most of the work goes on in the hallways. "It's like somebody's attic," says Ming Fung, "We try to get them to clean it up, make it all rational, but that's not what they are." "Both our shop and theirs are sort of funky," adds design partner Hodgetts. "I guess that's why they hired us."

If the truth were told, the reasons behind this building's messy vitality are more prosaic. Click & Flick, as the intertwined enterprises are known, owned a 40- by-100-foot lot on a mixed commercial and residential street in West Hollywood, California. Given the narrow width of the site, the designers could only shoehorn seven parking spaces on the lot. That meant the building could not exceed 2,200 square feet of occupiable floor area, and glass in exterior walls had to be kept 15 feet away from the lot line to satisfy building-code requirements. To meet West Hollywood's strict commercial-zoning requirements, the entry to the parking area had to fit within the lot's 40-foot frontage, as well as an elevator for handicap access. The architects added an outdoor waiting area,"like an old Hollywood bungalow, where you waited on the porch for your casting call," says Hodgetts. "Then, we took advantage of the California climate to put as much of the building outdoors as possible." A courtyard Fung calls "the big room," is used as a meeting space.

The actual building is a long bar that hugs the western edge of the site. It is anchored by a massive concrete block wall that architect and client alike hope will become less noticeable when the small bungalow next door is developed. The width of the main building is slightly curved and stands in contrast to what the architects call the "bridge" building, a suite of offices resting on an eight-foot grid of steel columns. A semi-circular metal-clad tower in the rear houses the office of Click & Flick owner Frances Grille, who always wanted an office with curved walls. The elevator's concrete-block tower anchors the composition. A pink stucco wall ties the pieces together by defining the edges of the courtyard.

The result is a slightly overscaled collage of building parts that look like fragments of a film set marooned in a neighborhood of bungalows. "We see the whole building as additive," explains Hodgetts. Click & Flick's unfinished look partially reflects the hope the owners can buy the lot to the east, which would lighten the impact of the zoning restrictions and enable them to make better use of the site. "Then it will finally be a courtyard building," sighs Fung. *Aaron Betsky*

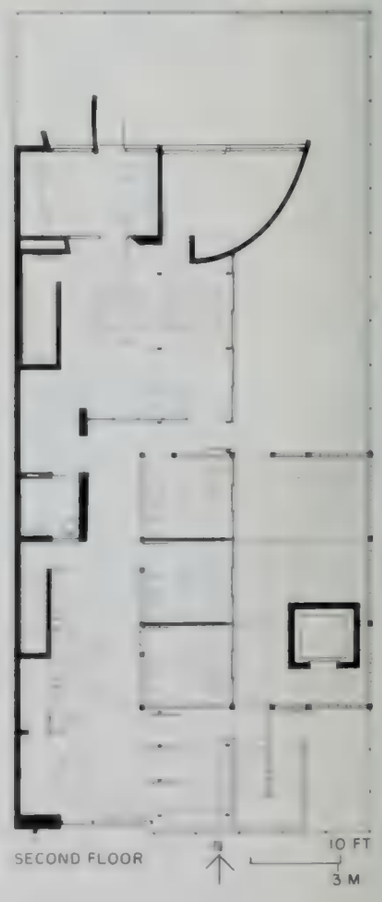
Credits
Click & Flick, West Hollywood, California
Owner: *Click Model Management*
Architect: *Hodgetts and Fung Design Associates—Ming Fung and Craig Hodgetts, design partners; Lynn Batsch, project architect*
Engineers: *Niver Engineering (structural); Patrick Bryne (electrical)*
General Contractor: *Pacific Southwest Development, Inc.*
Building Cost: *$683,625*







Under the leaning curve of the "boat building," Click and Flick is a collage of materials in muted colors. Client Alan Mindel wanted to be able to "really fling all the doors open," thus making use of the ample outdoor space of the narrow lot, while reinforcing the "sense of family" that is a central driving force for this small talent and model agency. The traditional offices are few, and all open to each other. A bleached plywood sliding door cordons off an executive office (above), while the area under the "bridge" building (far left) serves as a communal work area.





Tour of Duty

By Charles Lockwood

Despite the apocalyptic headlines and doom-and-gloom pronouncements from local officials, the current wave of military-base closures offers unparalleled opportunities for many metropolitan areas, and considerable work for architects and planners in the decades ahead. Although the federal government disposed of redundant military installations throughout the 1960s and 1970s, it has named over 150 bases for closure since the late 1980s, far more locations than ever before.

Nor does this figure signal the end of the military downsizing. The Defense Base Closure and Realignment Commission will recommend another round of closures in 1995. Future military reductions, said Secretary of Defense Les Aspin in *Time* earlier this year, "will mean more, not fewer, base closures."

What can be done with all this former military land? In most instances, bases are ideal sites for commercial and residential development as well as parks and open space. In Orange County, California, for example, the 4,738-acre El Toro Marine Corps Air Station is bordered on three sides by the city of Irvine, and is near the business districts of Costa Mesa, Irvine, and Newport Beach.

Given these opportunities for development, plus the urgency of replacing jobs lost to base closures, municipal officials, citizens' groups, and architects are proposing reuse strategies, such as housing, office and industrial parks, airports, college campuses, and open space. Some suggestions range from the imaginative to the farfetched. For example, reuse proposals for 44-square-mile Fort Ord on Monterey Bay in California include a grab bag of options such as a Disney theme park, a cruise-ship pier, resort hotels, an Olympic training center, a university, and a golf hall of fame.

Charles Lockwood has written about architecture and planning for The New York Times, The Los Angeles Times, *and* The Atlantic.

Looking beyond piecemeal proposals, some architects offer larger visions for former bases. "There is no automatic formula for base reuse," says architect and planner Elizabeth Plater-Zyberk. "Each property should be developed according to specific regional needs and its urban or rural location," cautions Plater-Zyberk. "If the base is surrounded by suburban sprawl and is already a transportation focus—as many of these properties are—it could become a multi-use town center. If the site is located far from a metropolitan area, it might be a practical location for what Anthony Downs of the Brookings Institute calls 'LULUs' or 'locally undesirable land uses' like prisons or waste-management facilities."

"The federal government has its objectives in base closures," notes Richard Krauss, principal at Arrowstreet in Somerville, Massachusetts, "and various members of each local community will fight for their agendas. The challenge is balancing all the competing interests, and achieving what's best for each community in the long run."

Success stories

With intelligent planning as well as government and local support and cooperation, base closures can become a remarkable boon for the surrounding community. The Charlestown Navy Yard in Boston, which closed in the 1970s, now has more than 2 million square feet of office and research facilities, 1,200 housing units, a hotel, cultural facilities, a marina, and a 16-acre waterfront park. Larson Air Force Base in Moses Lake, Washington, is a jet-pilot training center and aircraft-testing site. Dow Air Force Base in Bangor, Maine, now has an airport, hotel, and branch campus of the University of Maine.

But some base closures do not have such happy endings. Closures can wreak long-term economic havoc on regions, particularly if plans stall because of unexpected factors like excessive toxic cleanup costs or protracted legal challenges. In these worse-case scenarios—which resemble some of the ill-conceived and never-completed urban-re-



Ernest Braun



U. S. Navy

Converting military bases to civilian uses can be a devastating experience or a boon to surrounding areas, depending on factors such as location, planning, and local participation.

newal schemes of a generation ago—the military payrolls and related civilian jobs are gone, the former base sits vacant, and the surrounding communities cannot launch reuse strategies.

To avoid this devastating scenario and reap the long-term benefits of base closures, the government, citizens' groups, and architects must not only prepare innovative reuse plans but also pursue more effective land-disposition and redevelopment procedures. The federal government and states must first provide greater assistance to communities facing severe economic dislocation from base closures. Otherwise, the pressure to replace lost jobs in affected communities, and replace those jobs fast, will make long-range planning for base reuse all but impossible. Sweeping visions will fall by the wayside.

In a recent article in *Urban Land*, Bonnie Fisher, a principal at ROMA Design Group in San Francisco, recommends that the federal government and affected communities consider such actions as establishing clear national objectives and priorities to guide reuse strategies, creating an appropriate management entity for former bases which remain under public ownership, streamlining the approvals process, and reconnecting these sites to the surrounding metropolitan fabric.

"The General Services Administration must revise its archaic land disposition system if communities want to avoid piecemeal base redevelopment and further urban sprawl," she says. "A single nonprofit corporation should retain ownership of the lands, transferring sites through long-term leases to public and private leaseholders, although outright land sales may be necessary for private residential use," states Fisher. "Backed by the federal government, this corporation will have the resources and perspective necessary to assure long-term planning and development that benefits the entire region," she continues. "This nonprofit corporation can also be an effective master developer, taking lead responsibility for planning, site preparation, parcelization, public approvals, and developer negotiation." To avoid delays in implementing reuse programs, Fisher recommends a federal toxic cleanup jobs corps similar to the Works Progress Administration of the 1930s to clean up bases.

Money for planning

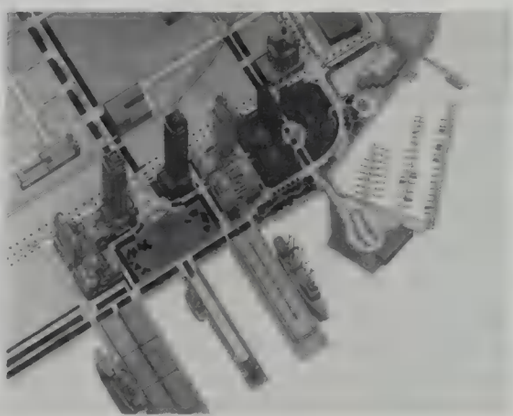
Architects must join with the government and community groups and spearhead long-range planning activities for base reuse programs. "For many years, Americans haven't done much planning or even had funds for planning," says Herbert McLaughlin, of Kaplan/McLaughlin/Diaz in San Francisco. "Base closures, together with the recently enacted Intermodal Surface Transportation Efficiency Act (ISTEA), represent a chance to get some planning money. The amount needed is infinitesimal compared to other base reuse costs like toxic cleanups, and it is more important in the long run to the region's economy and livability," says McLaughlin. "The architectural profession's first responsibility is to make sure that more money is available for planning. If we must go to Congress to get this money, then we should lobby. Isn't this what we pay our AIA dues for?"

The vast size of many bases under single federal ownership gives architects an unparalleled opportunity to mold our metropolitan areas with imaginative reuse plans. "Why not use former bases to stop sales-tax-hungry municipalities from the mad over-zoning of land for commercial uses?" asks McLaughlin. "The impending redevelopment of these large parcels could encourage surrounding communities to enact regional tax-sharing treaties. Afterwards, these jurisdictions could restrict commercially zoned land over a large area, thereby controlling growth better."

Today the life cycle for these military bases must begin all over again through redevelopment, says Bonnie Fisher. "Their promising futures must be planned with the same degree of forethought and commitment that was devoted to their original creation." ■

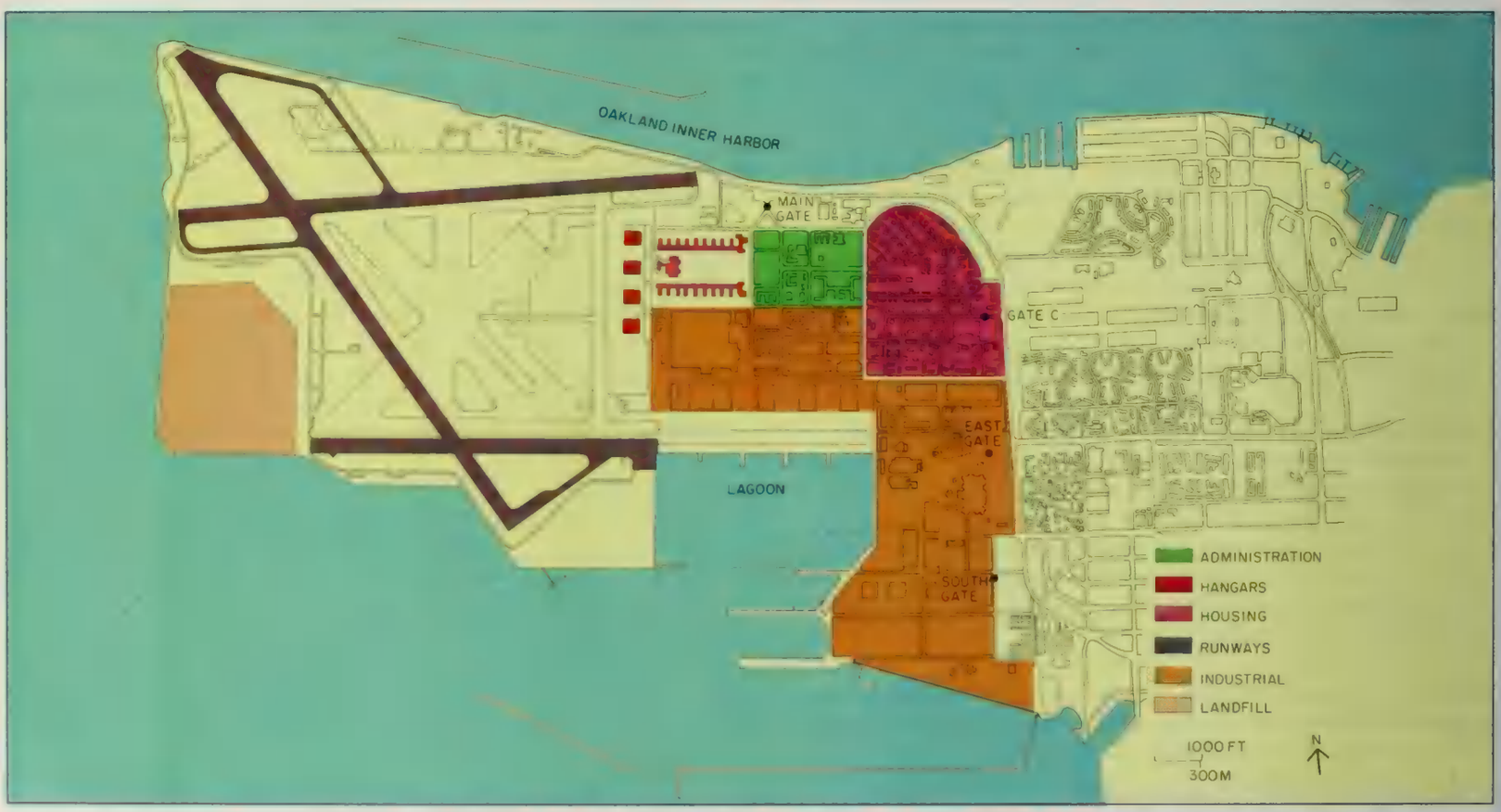


Deann J. Shier/Hawkins Productions



The Presidio in San Francisco (left opposite) will become part of a national park in 1994. Mare Island Naval Shipyard (right opposite), also in the San Francisco area, is one of the latest bases set to be shut down. Plans by ROMA Design Group for the Broadway Complex in San Diego (drawing left) call for redeveloping a Navy supply center downtown (far left) as a public-private complex.

Case Study: Reinventing Alameda



Not every military base targeted to be closed is blessed with such a spectacular location—views of the San Francisco skyline and the Golden Gate Bridge, waterfront property on three sides, and proximity to two international airports, a modern rapid-transit system, and an interstate highway. But the Alameda Naval Air Station (NAS) faces many of the same problems as other bases chosen to be closed in the next few years. Like most of these military installations, the Alameda NAS will have to clean up toxic-waste sites, work with local and regional groups to figure out what new uses might be appropriate for the site, and run a gauntlet of regulatory approvals. Once all that is done, public agencies and private developers will have to be found to implement whatever plans are finally devised.

To get beyond a general discussion of the issue of base closures, ARCHITECTURAL RECORD asked four architects to draw up some preliminary ideas for converting the Alameda NAS to civilian use. [illegible] Alameda just outside Oakland for many of the same [illegible] President Bill Clinton chose it in August as the place to unveil [illegible]'s plan to assist communities hit by base [illegible] high profile facility with great opportunities for redevelopment and, if handled properly, could become a model for base conversions around the country.

Vital statistics

Commissioned in 1941, the Alameda NAS occupies 1,522 acres on the western quarter of Alameda island. The base falls within the city of Alameda, a mostly residential community with a pedestrian-oriented downtown and many Victorian houses. The largest employer on the island, the base has 3,100 military personnel and 5,400 civilians working within its limits. In addition, the aircraft carriers and other ships that use the base as their home port employ another 10,000 people. Major facilities at the base include two runways totalling 338,000 square yards, seven aircraft maintenance hangars, 5,000 feet of berthing space at two major piers, ship maintenance facilities, dozens of warehouses, and 1,234 units of family housing.

Like most military bases, the Alameda NAS has a mix of buildings that gives it the sense of a small American town, an important asset for future development. It also has large tracts of open land used for runways, training areas, and loading that can be converted to

Set to be closed in 1997, the Alameda NAS offers excellent opportunities for redevelopment thanks to its site on San Francisco Bay and its stock of utilitarian buildings (below). Before private companies can bid on land, federal agencies, then state, local, and nonprofit housing agencies must be given the chance to develop the property. Because of its location on an island with limited bridge and tunnel connection to Oakland (site plan opposite), the base poses a serious problem of access for any major redevelopment. "To a large extent, the future of the base," says Donna Hoard, director of community development for the city of Alameda, "is dependent on additional access."

Photos courtesy of Kaplan/McLaughlin/Diaz







recreational uses. While some bases are in more remote areas, almost all are well served by transportation links.

The four architectural firms invited to sketch some ideas for Alameda—Esherick Homsey Dodge and Davis from San Francisco, William P. Bruder from Phoenix, Perkins & Will from Chicago, and Deborah Berke from New York—were asked to focus on renovating existing buildings and to deal with environmental concerns. Although few of the base's structures have any great architectural significance, all of the participating architects agree that the unpretentious, utilitarian nature of the buildings make them good subjects for adaptive reuse. "It is truly tragic that with all that we learned from the 'bulldozer' redevelopment of our cities in the 1950s and '60s, that we still blindly tear down so much of what we have so recently built," says Bruder. While some buildings on the base will certainly be torn down, many of the large-span structures offer exciting opportunities for reuse.

Some of the most critical environmental problems found at the base are jet fuel in the water table, dumps with unexploded bombs, and toxic, medical, and radioactive wastes. The Navy has estimated that cleaning up the mess could cost $180 million. Since much of the base rests on landfill and water is on three sides, wetlands are an issue as well. A final concern is a five-acre patch of asphalt adjacent to an airplane taxiway which the California least tern, an endangered species, surprisingly has adopted as a preferred nesting area.

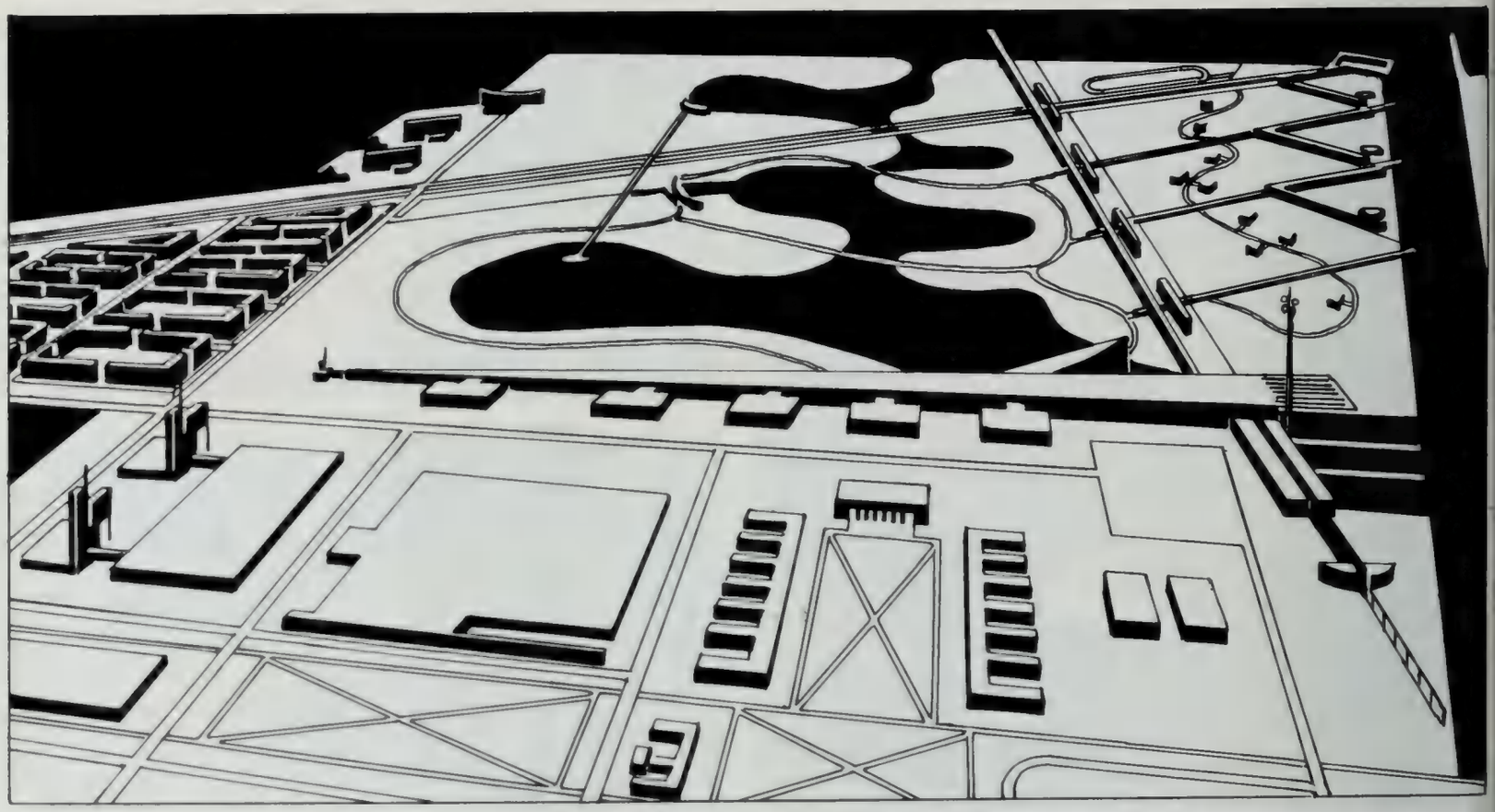
Beginning of a long process

The designs shown on the following pages are offered only as the very first steps in a long process that must involve the residents of Alameda, the military, and a bevy of regulatory agencies. RECORD's intent is not to recommend solutions, but to start a discussion and suggest a range of approaches. In fact, the official process has begun with the establishment of two commissions by Congressman Ronald Dellums and the city of Alameda to examine the base's reuse potential. According to Donna Hoard, director of community development for the city, residents worry about employment and retraining issues and improving access to the island without overwhelming the existing community. Above all, the people of Alameda want to ensure that their voices are heard. *Clifford A. Pearson*

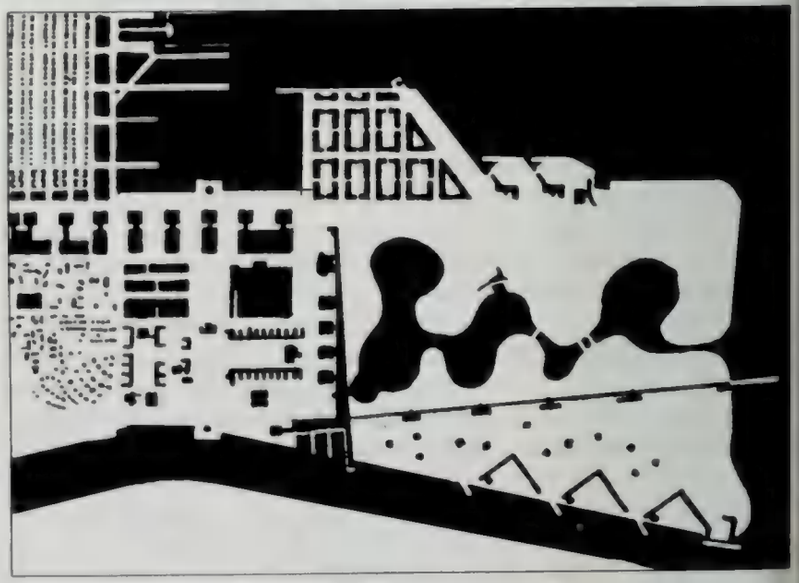
Urban Collage

Perkins & Will, Architect
Ralph Johnson, partner-in-charge

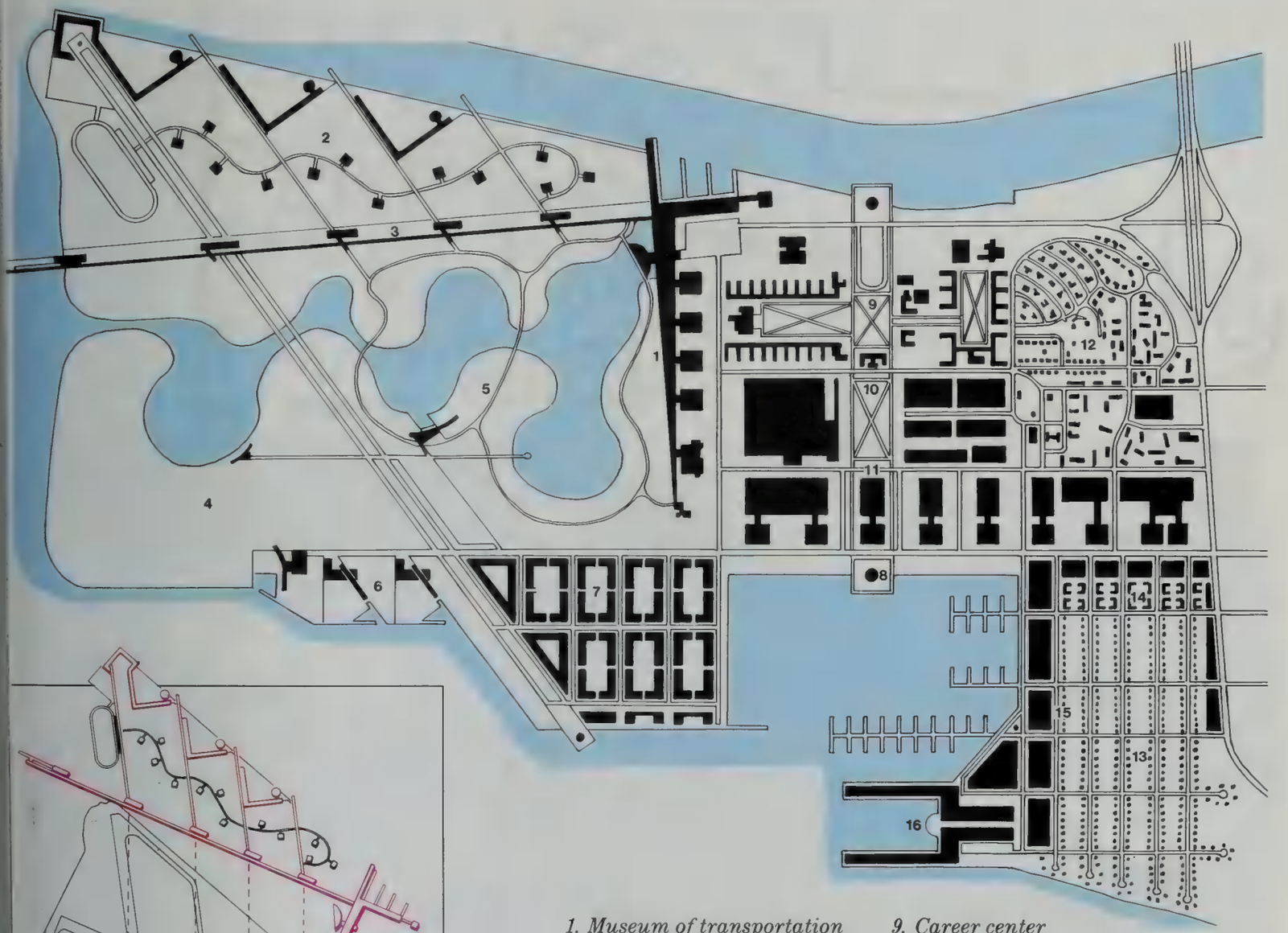
Trying to create a master plan that is both visionary and realistic, Ralph Johnson imagined a diverse range of new facilities that could be phased in over a period of time. Working together, the rich mix of uses would form a new regional center within an existing metropolitan area. Because the site is too large for any one use, a strategy of mixing uses seemed to make the most sense—for both economic and regional-planning reasons. "It's such a great site," says Johnson. "But in the face of a down market, it's also a little frightening." Underlying all of the architect's decisions was a desire to retain as many of the existing buildings as possible and to work with the memory of what the base has been. As a result, struc-



Architect Ralph Johnson sees the mix of uses as an urban collage with several layers of old and new elements. The western end of the island would be rebuilt as a park, "giving this part of town what Burnham gave Chicago" with his waterfront plan, says Johnson. "One of the opportunities here," he adds, "is to activate the edges, open up the waterfront." As for the residential portion of the plan, "the idea was to take the existing neighborhoods and work with them, extend them."



tures such as aircraft hangars, repair shops, and barracks would be converted to new uses. Taking full advantage of the large-span spaces of the hangars, the architect designed a regional museum of transportation that would tie the great structures together and display airplanes, seaplanes, and other vehicles associated with the history of the base. A monorail would take visitors from the main portion of the museum to a series of remote exhibits. Transportation could also be used as the organizing idea for a theme park on the western portion of the site. Existing repair shops would be converted into space for light industry and used as a hands-on resource for a new community college and career center occupying the current barracks and officers' quarters. To better define the spaces between these buildings, Johnson recommends adding some new structures that would create a series of linked quadrangles. New laboratory towers could be added to maintenance structures to create a research and development zone that would work in conjunction with the educational and industrial components of the plan. An office zone would offer space for businesses lured by the mix of educational, industrial, and R&D activities. Along the waterfront, the architect envisions parkland and a festival marketplace at the seaplane harbor. Completing the mix of uses is new housing—both multi-family and single-family—built as an extension of the adjacent community. *C. A. P.*

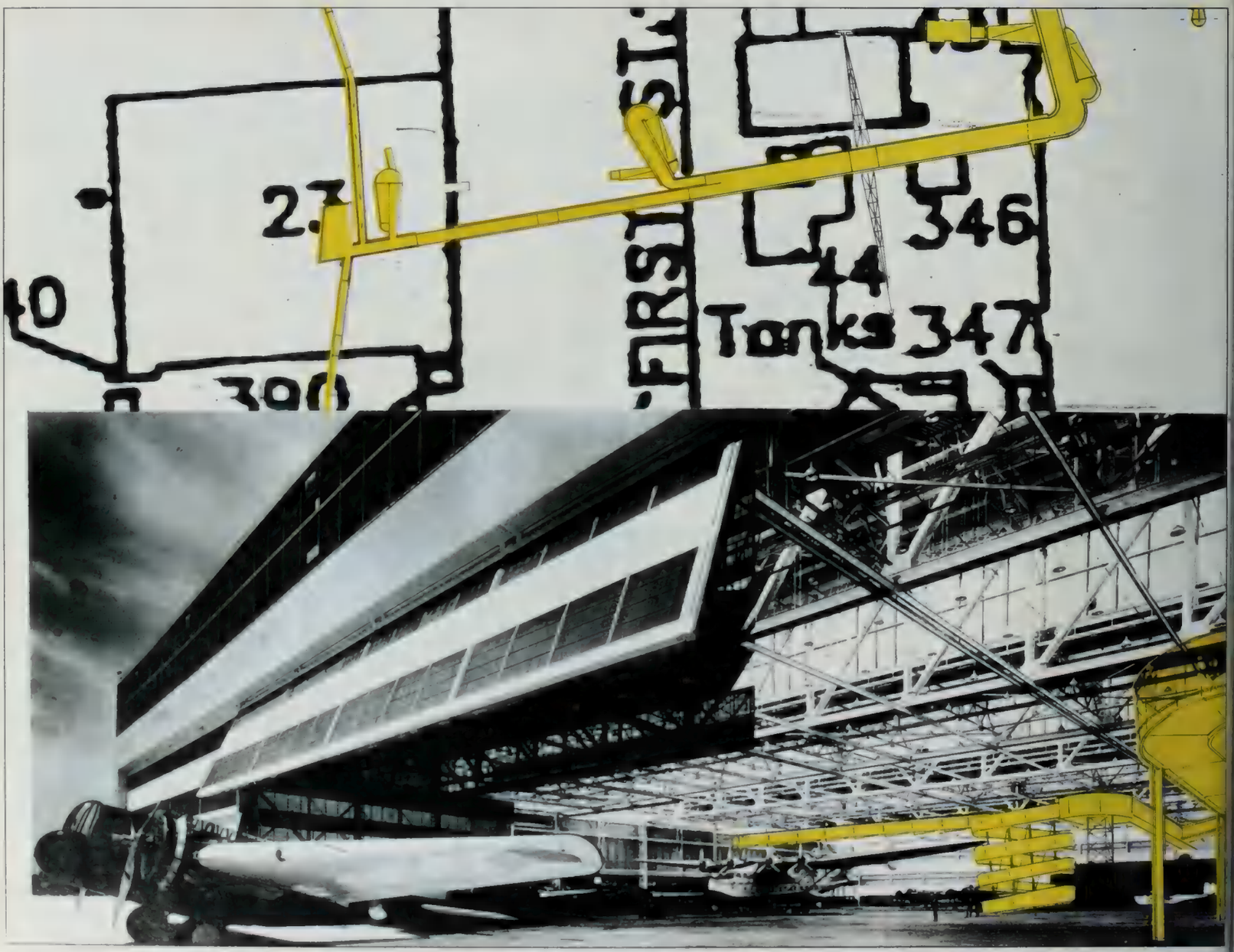


1. Museum of transportation
2. Theme park
3. Monorail
4. Nature preserve
5. Park
6. Hotels
7. Office buildings
8. Waterfront park
9. Career center
10. Light industrial
11. Research & development
12. Renovated housing
13. Single-family housing
14. Multi-family housing
15. Retail and housing
16. Festival market pier

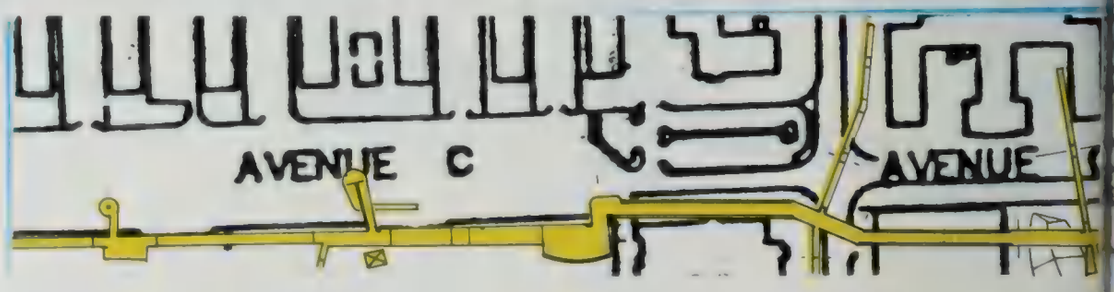
Connecting the Spots

Deborah Berke Architect
Deborah Berke, Maitland Jones, design team

Recognizing that any redevelopment of a base as large as NAS Alameda will take a long time, New York architect Deborah Berke and her associate Maitland Jones decided to design an element that would quickly establish a civilian presence while also linking old and new. To signify the base's new status as a place open to everyone, the architects developed the idea of an elevated walkway that would serve as an east-west corridor connecting the town of Alameda with the heart of the old base. Painted yellow to differentiate it from existing military structures, the walkway would snake its way around, between, and even through buildings. Believing that programming for the base should evolve out of discussions with the people of

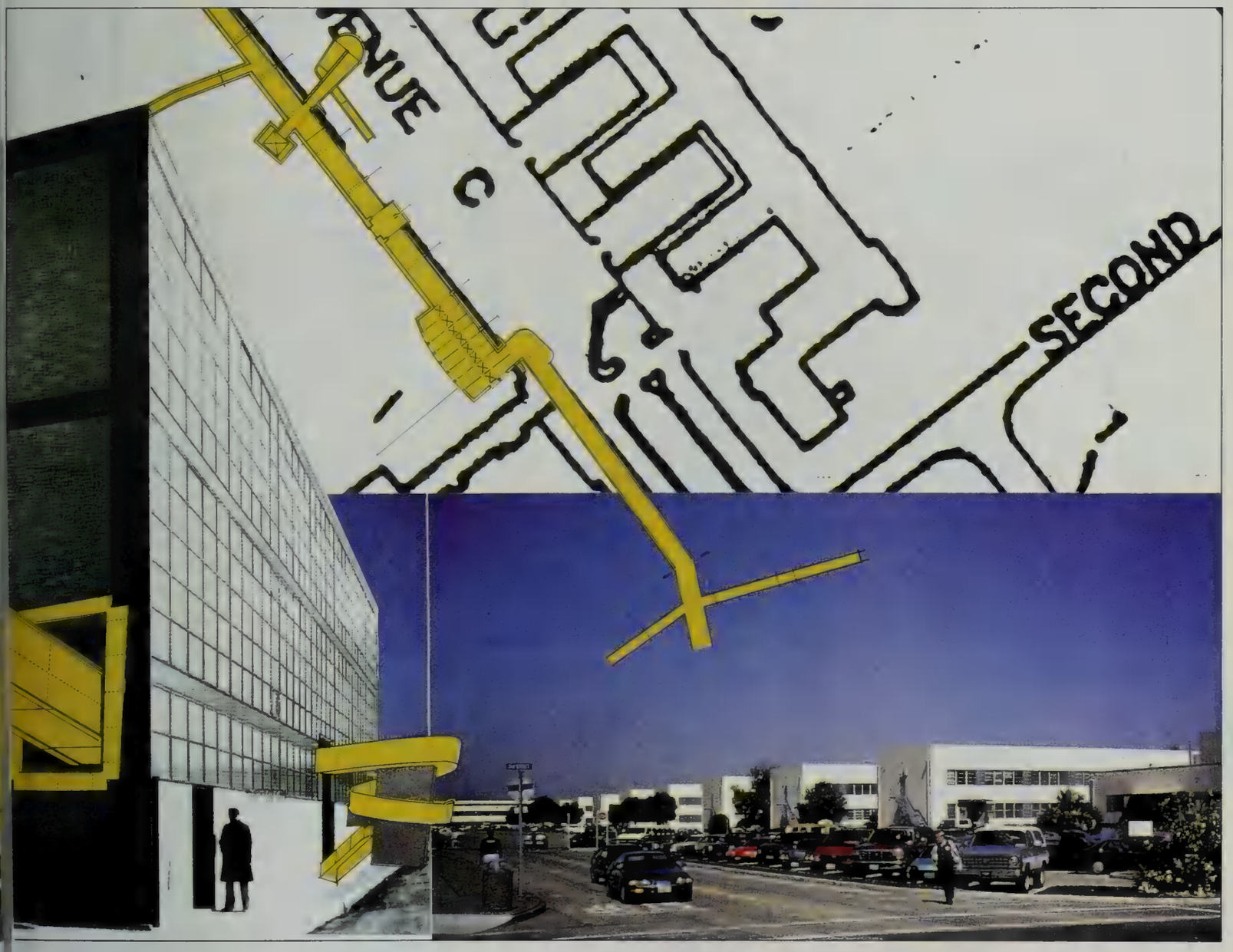


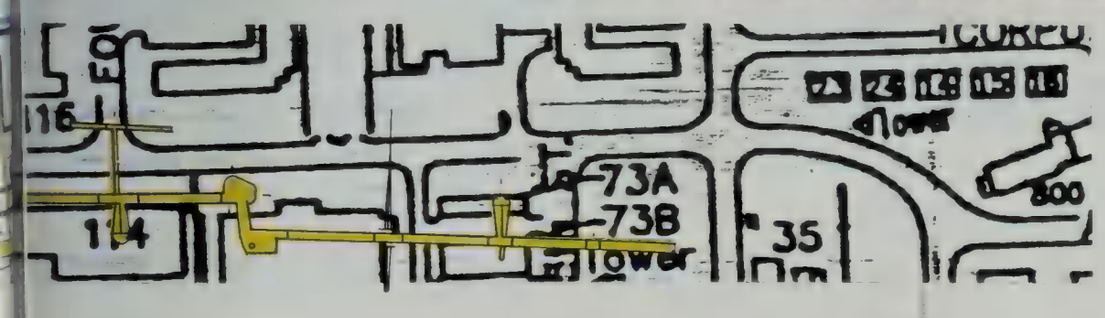
Today the ramp has become a symbol of accessibility, says [illegible] and is no longer just a [illegible] element. Here a [illegible] ramp is a metaphor for accessibility for all [illegible] and military, [illegible] disabled.



Alameda, Berke and Jones didn't designate specific uses for existing buildings, but instead designed an element that could weave together all kinds of structures. Since any cleanup of toxic wastes on the site would be one of the first steps in redevelopment and might close the area for an extended period, the elevated conduit could provide safe access for the public to visit the area and observe the cleanup in progress. Later, it could serve as a new plane on which redevelopment could take place. Not wanting to imitate "skywalks," which often reduce the importance of streets by providing an alternative means of circulation, Berke and Jones designed their path to include frequent ramps, stairs, and elevators to the ground. *C. A. P.*





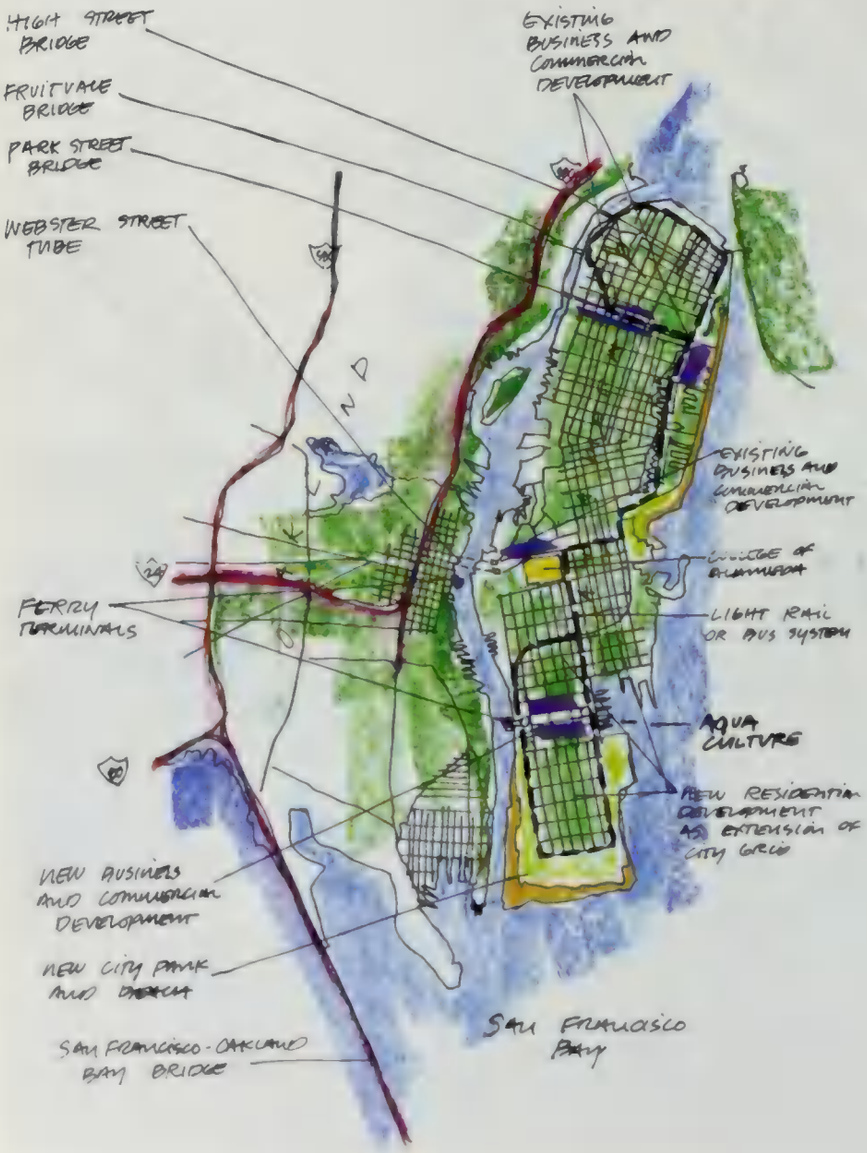


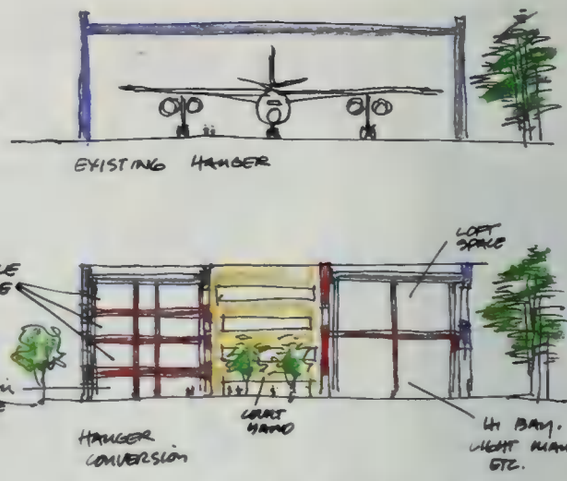
Artwork includes images of Albert Kahn's Glenn Martin Plant (opposite), photo by Damora, from Designing for Industry: The Architecture of Albert Kahn, *by Grant Hildebrandt, MIT Press, 1974; and Mies van der Rohe's Minerals and Metal Research Building (above, left), photo by Hedrich-Blessing, from* Time and Architecture, *by Siegfried Giedion, Harvard University Press, 1967.*

Balancing Act

Esherick Homsey Dodge & Davis, Architect
Joseph Esherick, David Maglaty, Edward Dean, Cathy Schwabe, Russ Drinker, design team

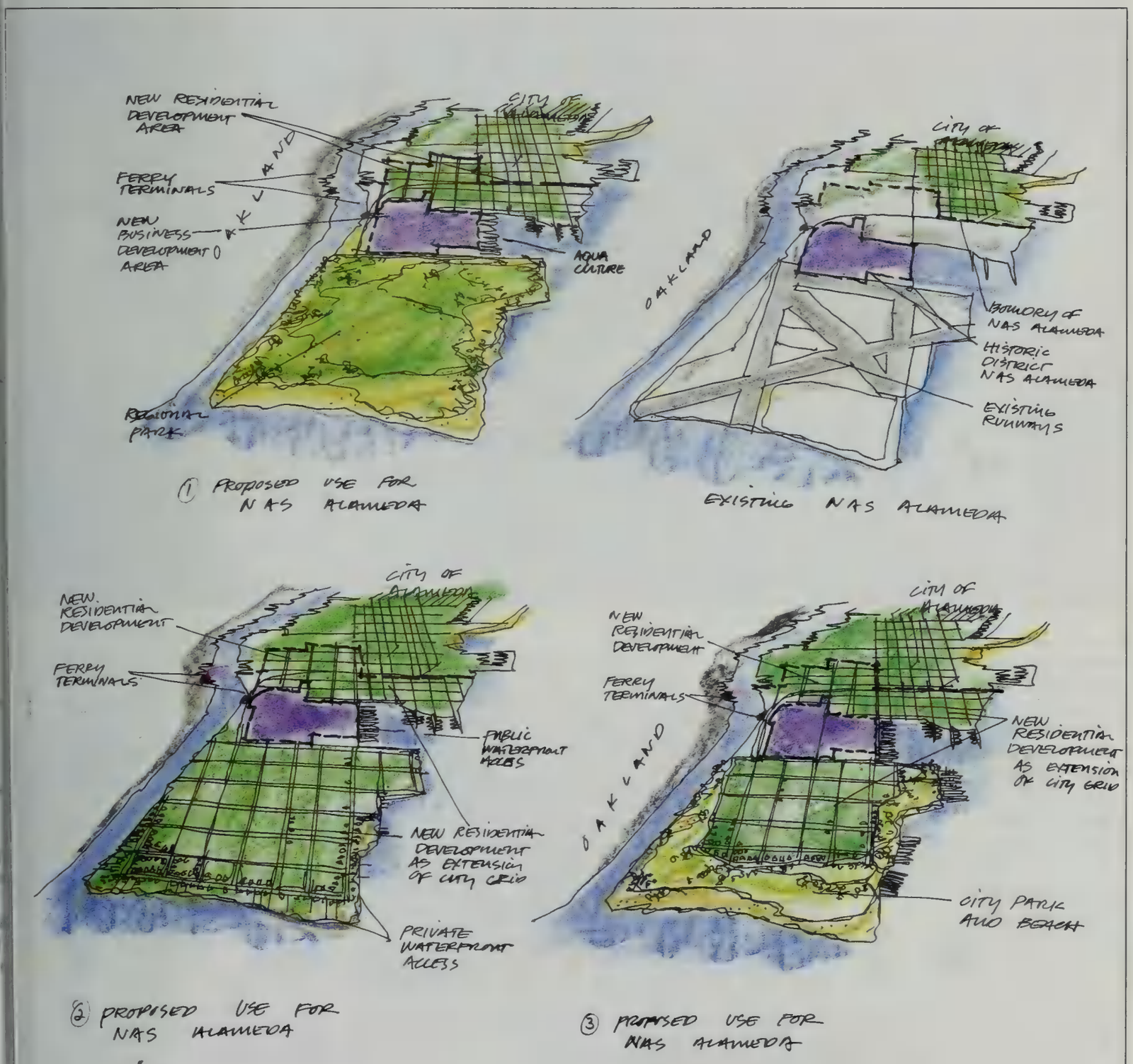
Almost by definition, military bases are physically and socially isolated from their surrounding communities. Fences, walls, and gates separate them from whatever is next door, while the scale of their buildings and open spaces breaks sharply with that of their neighbors. Although they provide employment for people who live in the area, their overall mission is national in scope, not local. As a result, the architects at Esherick Homsey Dodge & Davis saw their most important task as that of integrating the naval air station with the town of Alameda. In the process, the base's large-scale single-function facilities will have to be adapted to serve more diverse, small-scale uses. Limiting what can be done, however, is the base's location on an





Three plans (opposite) sketch out a range of possible approaches to redeveloping NAS Alameda. (1) This scheme shows a large regional park occupying the entire western portion of the base, with a new residential area on the east and a mixed-use aquaculture and new business district in between. Such a large park, though, might bring in too much new traffic to the island. (2) This plan shows the town's street grid extended throughout the entire site and residential development reaching to the western edge of the island. (3) The architects' recommended scheme is to emphasize residential development, while still providing parkland around the waterfront. Existing hangars could be converted into space for "incubator" businesses (above). Regional map (left) shows existing transportation links and proposed ferry terminals on either side of the estuary.

island with only a few transportation links to the rest of the Bay area. Without expensive additions to the existing bridge-and-tunnel system, new uses that draw large numbers of people from other parts of the Bay area do not make sense, says Esherick. The architect also strongly believes that reprogramming the base must be done through a participatory process in which the residents of Alameda play a leading role. In the meantime, Esherick's design team has identified a couple of basic strategies for new development. The first is to extend the existing street grid of the town onto the base, creating a seamless connection between what are now two worlds. The second is to create a balance between new uses that serve local needs and those that serve regional ones. In their plans, the architects emphasized new housing and parkland, while also proposing that some of the waterfront be used for aquaculture (raising abalone or other shellfish, for example). New ferry terminals would help link the island to surrounding areas without overwhelming it with traffic. *C. A. P.*



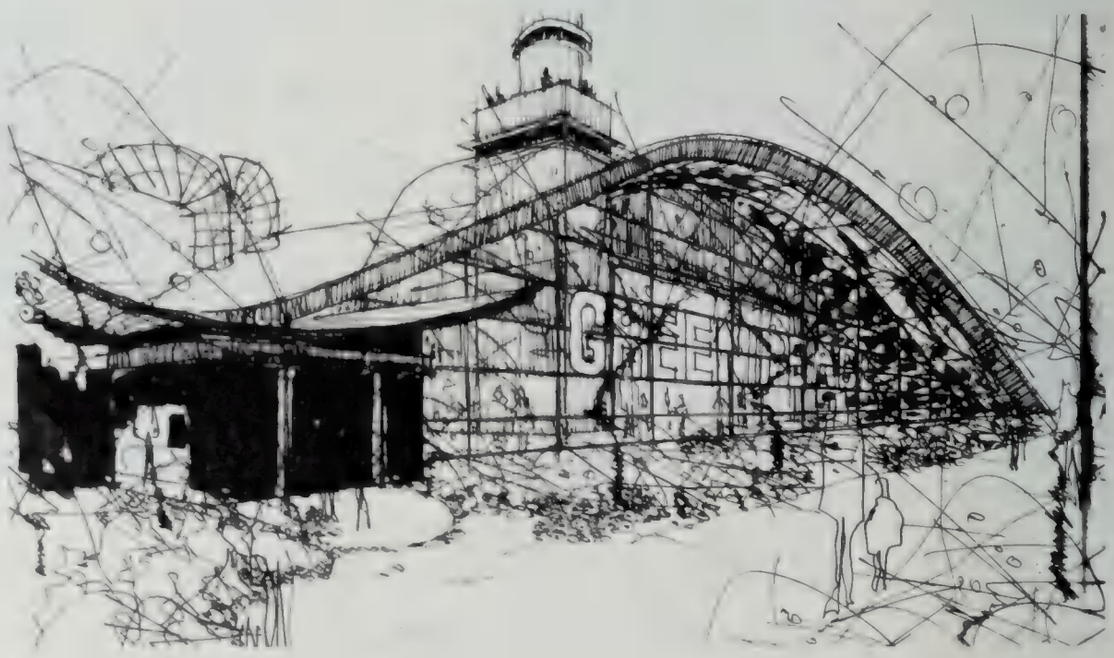
Green Piece

William P. Bruder, Architect

Looking at the environmental hazards presented by Alameda Naval Air Station—toxic wastes, unexploded munitions, asbestos, and degraded wetlands—Will Bruder sees the chance to create an ecological community that could serve as a model for base conversions around the country. In the spirit of taking life's lemons and making lemonade, Bruder suggests converting a series of seaplane hangars into an environmental conference center and museum, and linking the existing bow-trussed structures with solar greenhouses. The new center's glass facade and building systems could be showcases of the latest energy-efficient and "green" building technologies. Not far away, Bruder would turn the base's administration buildings and

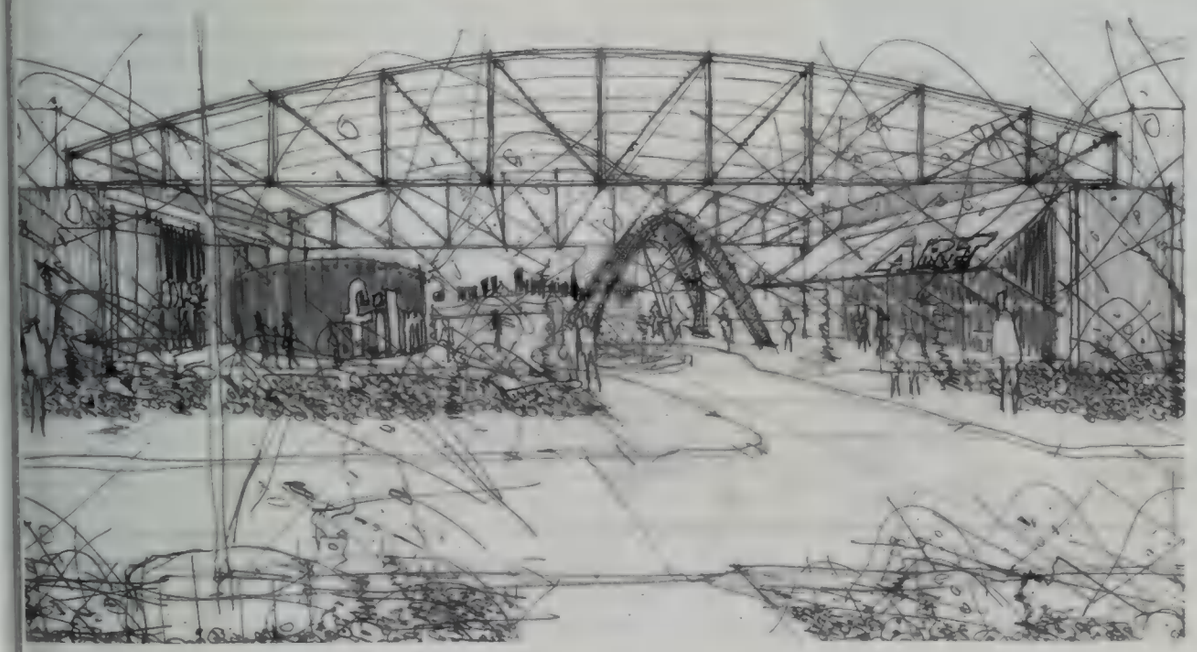


A new museum with a save-the-earth theme could occupy some existing seaplane hangars and be part of a larger environmental conference center (right). Bruder would link the hangars with greenhouse pavilions so the combined roofs would form a wave-like element.



dormitory-style housing into a college devoted to environmental studies and research. In the southeast corner of the base, he would use existing repair shops and warehouses as building blocks for a vocational retraining center that would focus on "green" industrial production. Understanding the power of water to draw people, Bruder recommends turning the seaplane lagoon into the focus of a new town center that would blend together offices, hotels, shops, restaurants, recreational facilities, and an aquarium. A new park and nature-trail system could link up with the aquarium and wrap around the perimeter of the island, while a bird and wildlife sanctuary could occupy the western edge. "The idea is to re-establish the romance of Alameda *island* as a unique place," explains Bruder. Rounding out the mix of attractions would be a new cultural arts center that would take advantage of the great spaces inside existing aircraft hangars for performances and exhibits, while also turning the spaces between these huge structures into covered courtyards and piazzas. The architect would also upgrade existing housing and provide new neighborhood amenities such as shops, preschools, and recreational facilities. In addition, he proposes two sweeping "crescents" to provide medium-density multi-family housing. The crescents, reminiscent of those in Bath, England, could be attached rowhouses, perhaps with stacked duplexes accessed from a middle level. *C. A. P.*





Bruder proposes creating a cultural-arts center by inserting performance and exhibition spaces inside existing hangars and erecting glass roofs over outdoor spaces between the hangars (above and left).

Technology Focus:

The End of Dumb Walls

The case of the Polk County Courthouse, in Bartow, Florida, sounded like Sick Building Syndrome. The 1987 building had to be abandoned soon after completion when occupants complained of health problems. A forensic evaluation by consulting engineers Simpson Gumpertz & Heger, of Arlington, Massachusetts, did find the hvac system inadequate for Florida's high humidity. (Levels "often rose to 80 percent or more," reported the engineers.) But they also found a litany of all-too-common architectural detailing problems: poor roof/wall connections (they leaked), rampant mildew growth around leaky windows (gaps allowed moist air infiltration, which condensed on cooled interior surfaces), bulging and cracking brick veneer (improperly detailed movement joints). Reconstructing the roof, walls, and hvac system cost $20 million.

Few buildings suffer so many maladies, but too many suffer one or more. Why does this happen? Don't we have better materials and know more about how walls work? Yes, says Thomas Schwartz, principal and head of the building technology division at Simpson, Gumpertz & Heger. However, he explains, some builders think "that you can always do something cheaper without sacrificing inherent quality." In an economic climate where clients measure the value of building construction and design services by whether the project opens on time and meets ever more punishing budgets, it's very tempting to design what might be termed "the dumb wall"—a thin veneer of something over light-gage supporting something. Any gaps are filled with sealant. Such systems even work sometimes, though they rely on—as one architect puts it—"magic pookie and prayer." In the design of walls, Schwartz explains, "There are certain minimums. All too often the boundaries are crossed."

Dumb walls: No one is responsible

Architect Thomas K. Butts, president of Interactive Resources, an A/E in Richmond, Calif. has faced the problems of widely used but poorly performing technologies. He has become an expert in thin-brick veneers because, he says, "no authoritative standards provide comprehensive technical information about these systems." Do you follow mortar and grouting recommendations of the brick industry, the tile industry, or the plaster industry? Butts has sorted them out as best he can.

Simplistic wall designs often neglect details appropriate to various climates. In South Florida, for example, merchant builders from other parts of the country introduced stud wall systems to an area accustomed to building in concrete block with stucco. While well-designed and constructed stud walls could in theory survive high winds, Hurricane Andrew's path of destruction last year showed that the theoretical criteria were rarely met on site [RECORD, August 1993, pages 30-31).

Dumb walls: Sealants as curse instead of salvation

"I am not convinced we should continue detailing buildings that are ... on sealants," wrote H. Maynard Blumer in *The Con-* ... (in a story aptly titled, "Sealants Are Too ... Summer 1990). "I am not able to identify the many ex- ... possibilities .... I am not able to control or anticipate the width and depth of many joints and how that will affect which sealant to use. I do not know what material will be furnished to receive the sealant until it is on the job site, yet the sealant manufacturer would like to test the compatibility of the exact granite or aluminum to be used," he wrote. If Blumer, a specialist in architectural technology and a specifications writer, is overwhelmed by such conflicts, where does that leave everyone else?.

According to Thomas Schwartz, the problem is "just as often with the sealant joint in its totality. The water is bypassing the sealant because what it's stuck to is porous or has many small cracks. Often there is nothing wrong with the sealant, there is something wrong with the detailing of the sealant-joint system." Many of the thin-wall cladding systems are "barrier" systems, intended to form a watertight membrane to prevent moisture penetration. They require extraordinary attention to field craftsmanship and need constant maintenance. Time and again Schwartz's firm has seen problems "when you put together the concept of a barrier wall with backup such as gypsum board or metal studs susceptible to rapid degradation from relatively minor water penetration," he says. "Designers and builders must recognize that cavity construction with waterproofing inside and flashing at appropriate intervals gives you a lot of security." Some manufacturers of EIF systems, which have been criticized for the inadequacy of their barrier techniques, now offer configurations that channel water within the wall to joint devices meant to carry it to the exterior. This brings such systems closer to the performance of proven cavity walls or pressure-equalized walls often called for on highrise buildings.

Dumb walls: Mildew factories in hot, humid climates

The South has also been plagued with more than its share of indoor air-quality problems in sealed buildings designed without regard for the exterior-to-interior vapor drive created by air conditioning in hot, humid climates. As mechanically cooled and drier interior air draws warm humid air into the interior, the resulting condensation ruins insulation, corrodes metal supports, and causes mildew growth. Mildew problems have been particularly prevalant in hotels and motels where vinyl wallcoverings make wrong-side vapor barriers. Condensation on the wall side provides perfect growing conditions for mold. A well-designed wall for this climate places an air barrier (with a perm rating of 0.5 or less) near the exterior and adds enough insulation to keep the location of the dewpoint—the temperature at which vapor condenses—well outside vulnerable wall components. (A completely uninterrupted membrane is probably unattainable, but a design that prevents water accumulation permits periodic drying which minimizes damage.)

Some architects are moving away from simplistic wall-detailing toward more sophisticated techniques. From studying "how old buildings fall apart," explains architect Steve Kieran, of Kieran Timberlake & Harris, his firm has "reconsidered the material selections and manner of assemblage in our new structures." Among the earliest results is the University Center at East Stroudsburg University, featuring a wall that is both technically sophisticated and esthetically arresting (opposite top and pages 110-113). On an even

Yesterday's simplistic skins are giving way to walls that recognize more sophisticated needs.

more modest scale, Jonathan Levi avoided visible sealant joints at a strip retail center (opposite middle and pages 114-115).

Smarter walls: Cutting energy loads; improving comfort

Improving technology is allowing walls to do more. Too often mechanical engineers make lowest-common-denominator assumptions about the design of the exterior wall which can result in inappropriately oversized systems. Resource conservation researchers such as Amory Lovins of the Rocky Mountain Institute have found that huge strides can be made by exploiting synergies between wall details, mechanical, and lighting systems. (See RECORD, December 1992, page 16 and February 1992, pages 34-35.) How to do it? Architects can now choose glass with remarkably project-specific properties. "Spectrally selective" coatings (such as widely used low-emissivity coatings) reflect the spectra that add the most unwanted heat, while permitting high transmittance in the visible wavelengths. (Suspended films can trap even more heat.) Such glazing combined with appropriately designed sunshades and light shelves, high-efficiency dimming fixtures and photovoltaic sensors, can allow daylighting—another until-now little-used innovation of the '70s. If properly designed and managed, this combination can actually permit engineers to size a far smaller cooling system, multiplying energy savings. And some of the costs may be amortized by utility company demand-side management programs that offer monetary incentives to reduce peak-energy demand.

Further improvements are on the way. Traditionally daylighting has foundered on poor control of light on bright days. Acceptance of electrochromic glazing, which can switch to translucent or opaque modes, has been slow due to high costs. Photovoltaic spandrel panels, which could supply power to switchable glazing and for other uses, have also had problems finding a market, though a manufacturing facility has just been completed in Fairfield, California. (See also RECORD, June 1993, pages 26-28).

Can we justify building better walls? As clients become more cost driven, there's been a migration of low-performance technology from fast-food stores and highway strip shopping centers to wider use in presumably permanent commercial and institutional structures. (For more on lightweight cladding systems, see RECORD, December 1991, pages 18-20.) On the strip, developers and owners are willing to trade high maintenance and high operating costs for low first cost because they recognize that the designs will become dated and the cheap stuff will "ugly out," even if it doesn't wear out, and need to be updated every 10 to 15 years. When this mentality moves to building types where occupancy is more sensitive and O&M budgets lower, owners may find performance unacceptable. Even Simpson Gumpertz & Heger, a firm that can point to many examples of the consequences of poor design and construction, faces situations where clients are under intense pressures to reduce construction costs. They lose their appreciation for reliable and durable construction, and "don't know whether we're being prudent or unreasonable," says Thomas Schwartz. On the other hand, Schwartz says the reason certain clients are looking for more durable systems is, "They've had problems." *James S. Russell*



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Taylor Photographics

Three modest-scale projects suggest alternatives to the dumb wall. Stephen Kieran likens the University Center project at Pennsylvania's East Stroudsburg University as "the first step toward a sealant-free building" (top). Architect Jonathan Levi uses subtle moves in a strip retail center to develop three-dimensional solidity (middle), rethinking coping details and movement joints. The Hillier Group designed a curtain wall (above) that could accept different details to take advantage of each solar orientation.



Tom Bernard

University Center
East Stroudsburg University

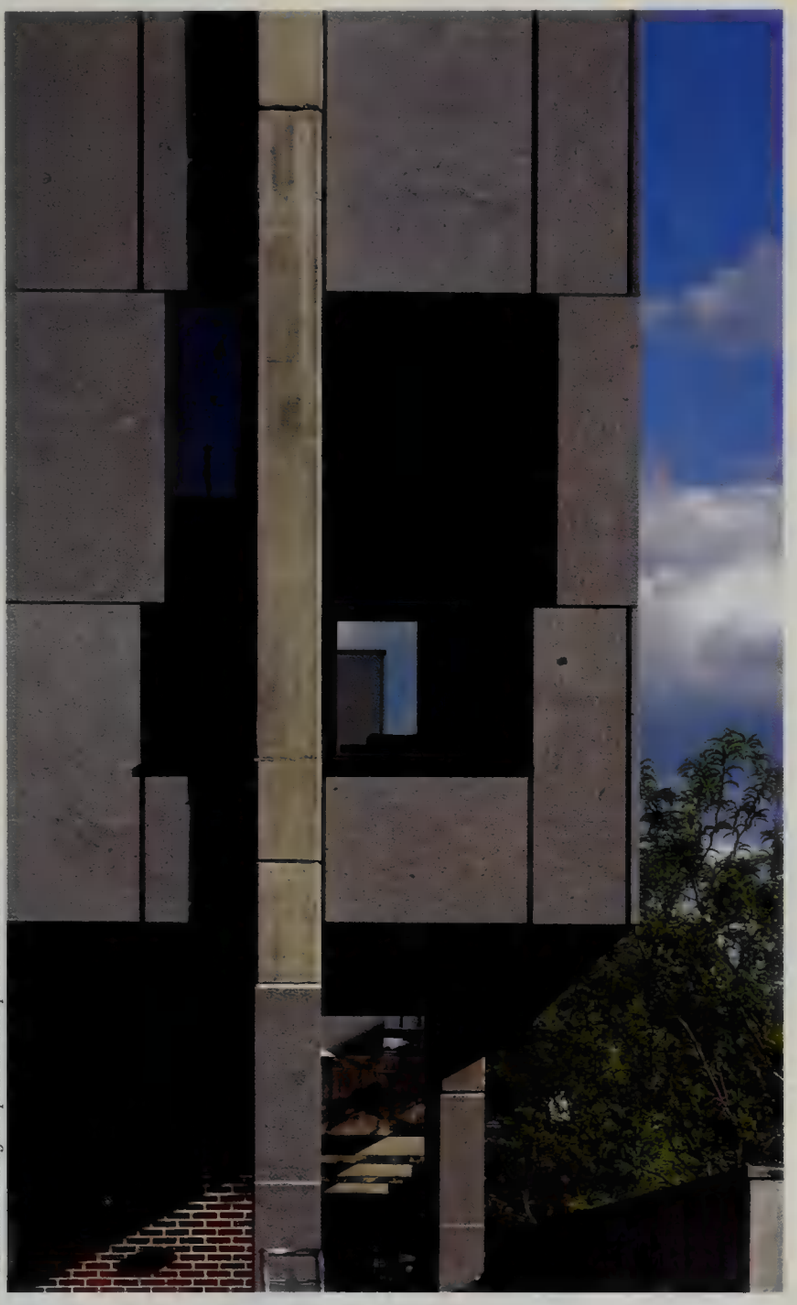
A ventilated wall in Pennsylvania

A technical rationale drove the design of this addition to a student center for a state university. By organizing mechanical systems and the building's structure on separate interweaving grids, Kieran, Timberlake & Harris has created an order that unifies an awkwardly proportioned square building, built in 1965, and additions on its north and south sides (drawings opposite). The design visibly comes together in the outside wall, which contrasts a cast-in-place concrete frame with a layer of thin-cut granite panels suspended in front of deep-set windows. The architects sought a system that was more reliable than sealant-dependent thin-skin curtain walls and lighter and simpler than a typical cavity wall.

Though the stone panels are stacked in a fashion resembling a traditional load-bearing bond pattern, they are in fact suspended from the building envelope by clips and their joints are unfilled. The granite's purpose in this wall is to protect the building from driving rain and sun. The building's actual envelope is a concrete-block backup wall that is insulated and waterproofed with a rubberized-asphalt membrane. Moisture passes freely out of the wall system through a



Catherine Bogert photos except as noted

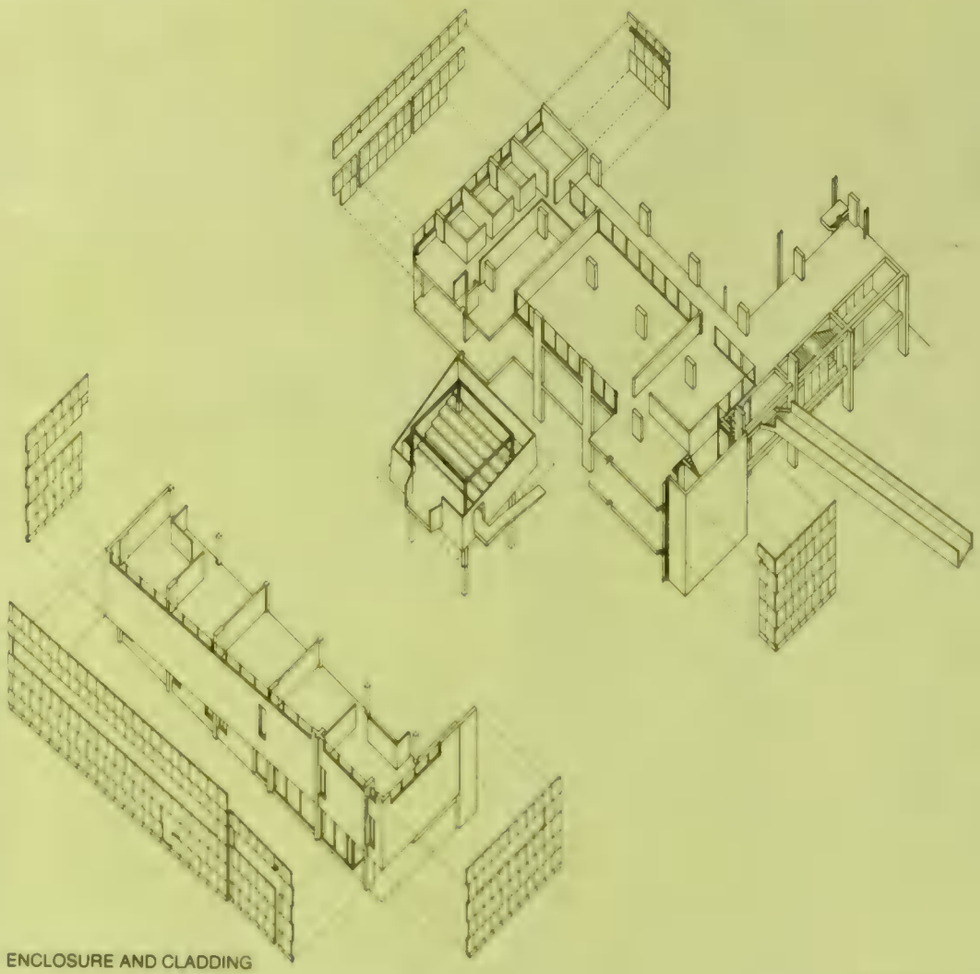


2-in. clear space between the suspended panels and the backup. It's not quite a cavity wall, as commonly seen in brick and block construction, nor is it quite the pressure-equalized rainscreen wall seen on highly engineered curtain-wall systems. This idea is called a "ventilated wall" in Europe, where it is more widely used, though systems are now available here (you can buy clip systems for stone or tile panels). "It's a step toward the sealant-free building," says Stephen Kieran.

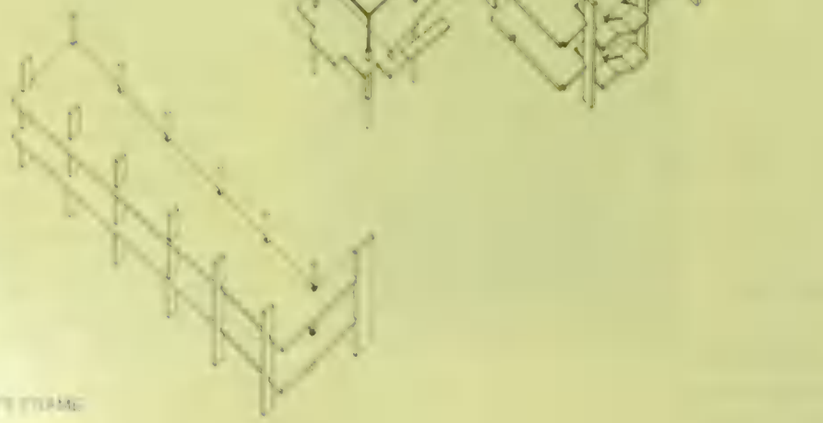
This design sets the windows in the backup wall, which offers superior protection of the vulnerable window-to-wall joints. The architects allowed the stone panels to overhang the tops of the windows so that this layering is visibly expressed. "It reinforces the conceptual separation of structure and enclosure," explains Kieran. The inset windows simplified detailing and the wall-panel pattern minimized special stone cutting with the result that this rigorous approach met a typically tough institutional budget. (Remodeling and the addition came in at $113 per new square foot.) *J. S. R.*

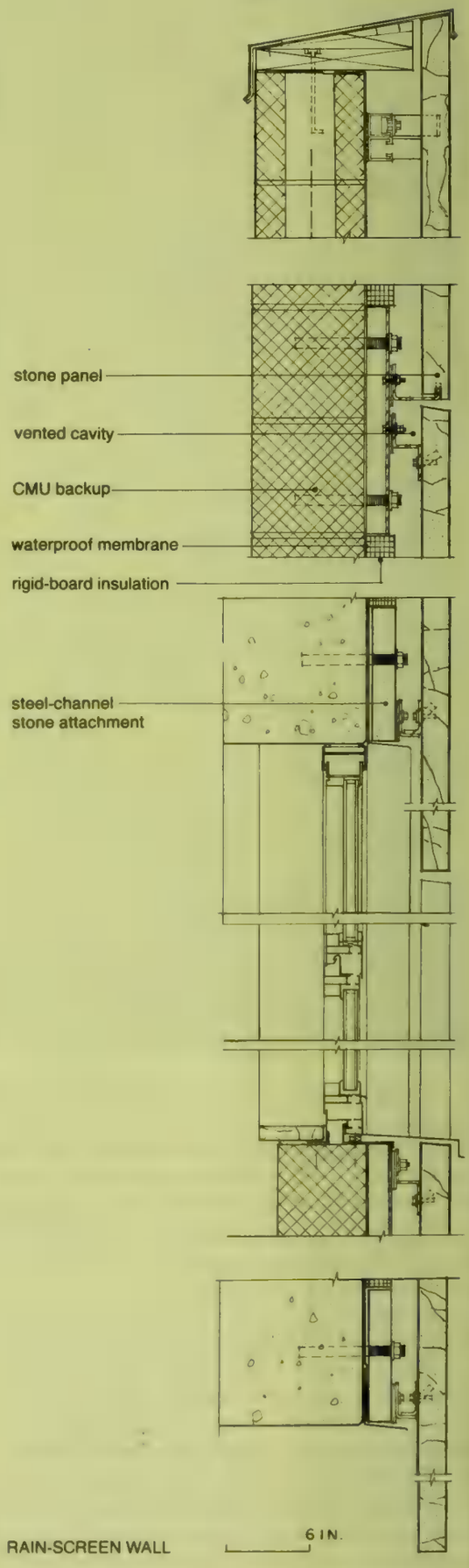


To economically add lounges, offices, and food-service areas to an existing student center, Kieran, Timberlake & Harris wrapped the brick-clad original with a small addition to the south and a larger addition to the north (drawings above). The wall expresses its layering of cast-in-place concrete frame (which forms an arcade on the north side, opposite and left), suspended open-joint granite panels, and windows set in the backup wall (above).



ENCLOSURE AND CLADDING





RAIN-SCREEN WALL

6 IN.

The original University Center was square, an awkward shape with already-deep floors. To maintain a perceptible order in new and existing construction, the architects first created a grid of cast-in-place concrete piers (oppposite bottom left), which are uncovered in the interior and expressed as an open framework system on the west elevation. (They also invented a "troffer" system on the interior to organize new lighting, wiring, and hvac ductwork.) Then they enclosed the new parts of the building with their ventilated wall system (opposite top left and opposite right).

According to the architects, the wall system offers the advantages of pressure-equalized rainscreen walls (through open joints and sills) without the usual engineering costs. (Air spaces have to be analyzed for a variety of wind conditions, for example, and compartmentalized to assure that the pressure is indeed equalized. Rainscreens that are not pressure equalized can actually draw water into the wall through suction or capillary action.)

Credits
University Center
East Stroudsburg University
East Stroudsburg, Pennsylvania
Architect: *Kieran, Timberlake & Harris—Stephen Kieran, James Timberlake, Samuel Harris, partners-in-charge; Steven Irvine, Christopher Macneal, project architects*
Engineer: *Brinjac, Kambic & Associates, Inc. (structural, civil, mechanical, electrical, plumbing, fire protection)*
Consultants: *Lisa Roth (landscape); Tigue Lighting, Inc. (lighting); Chink and Associates (food service); ICI, Inc. (cost and scheduling)*
Contractor: *MSG Associates, Inc.*





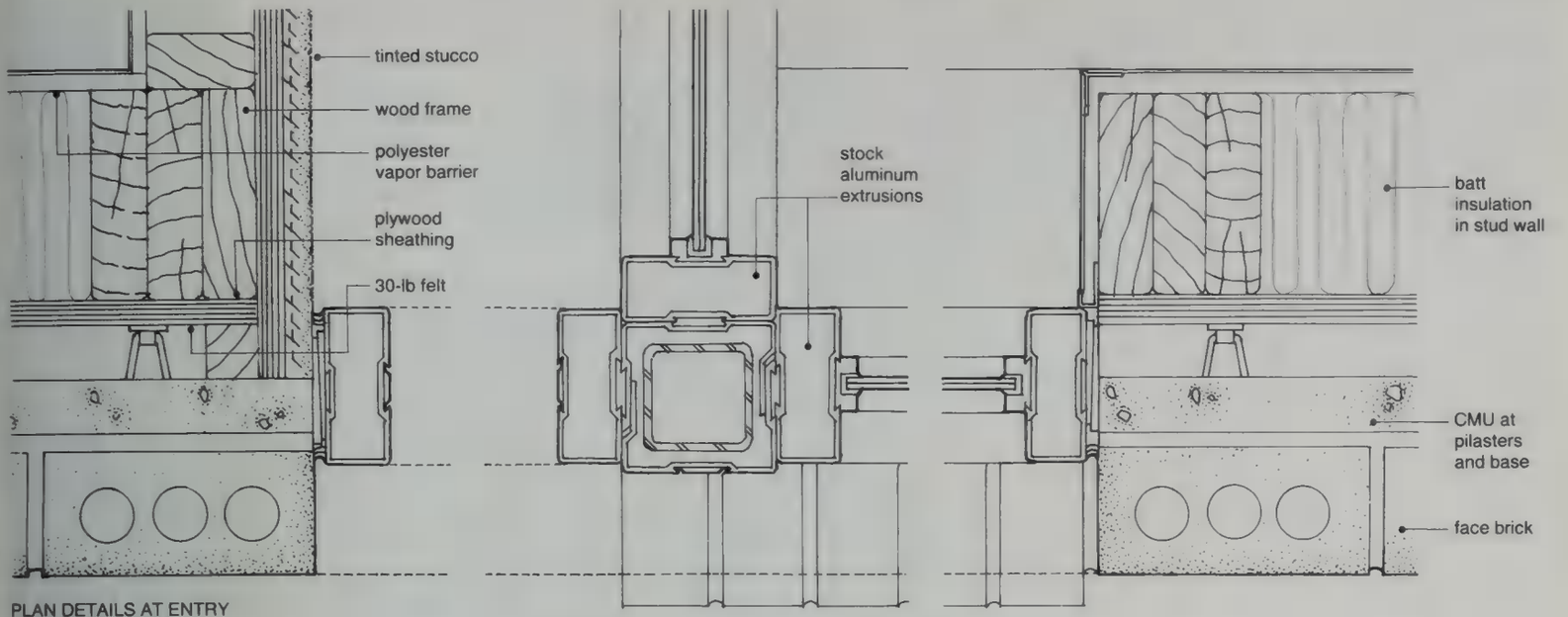


Southgate Commercial Block

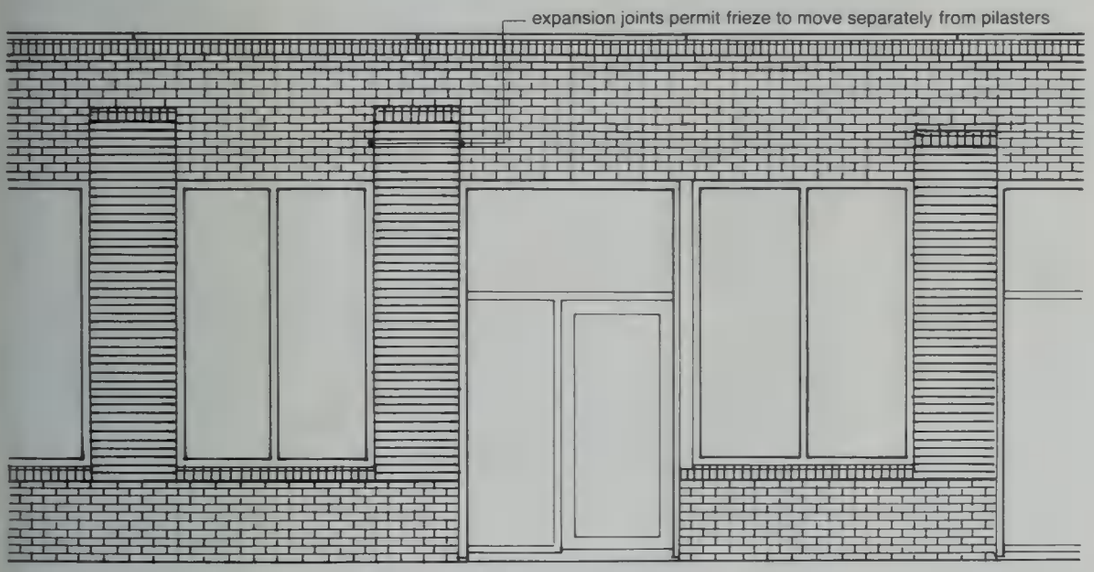
Disguising the shortcomings of a thin wall in Boston

Architect Jonathan Levi took the strictures of budget retail architecture in stride for this shopping strip in Boston's Jamaica Plains section. For him it was a chance to reinvent all of the details he had found problematic on similar projects. The design picks up the predominant rhythm of the residential neighborhood's columned porches in the typical bay (above left and opposite middle). He recessed the entrance, surface-mounted the window, and projected a pilaster.

He worked out small-scale details to convey a solidity not easily achieved using a brick with stud-wall backup system. The budget did not permit returning the foundations to support the recesses, so a stock aluminum section covers the transition between brick veneer and stucco (top right). To avoid interrupting the wall above the storefront with vertical expansion joints, Levi placed the joints around the pilasters, permitting the entire length of the fascia over the openings to move as a unit in response to thermal and moisture forces. *J. S. R.*



PLAN DETAILS AT ENTRY

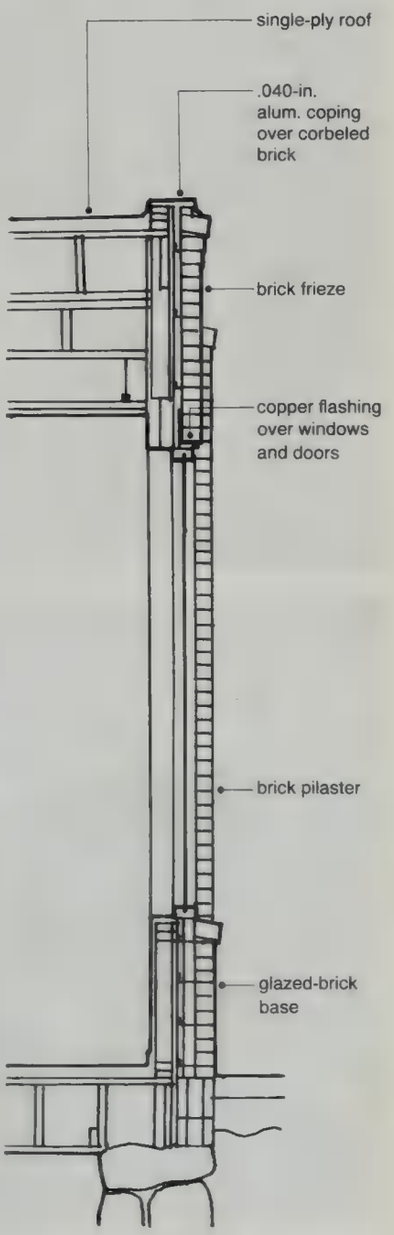


TYPICAL BAY ELEVATION



Levi achieves a powerful rhythm with small-scale gestures. The strip's composition is united by a glazed-brick base. He deeply raked joints to emphasize pilasters (opposite left). A slip joint at the end wall (left) allows independent movement of the long fascia above the openings. Since standard metal copings provide an unattractive cap to the wall, Levi set them back over a rowlock course of canted bricks (wall section right). He butted the coping joints together over a metal base flashing that carries water out of the gap, thereby avoiding typically sloppy "lap and flap" splices.

Credits
Southgate Commercial Block
Boston, Massachusetts
Architect: *Jonathan Levi Architect—Jonathan Levi, partner; A. Anmahian, I. Strong, staff*
Engineer: *Foley and Buhl Engineering (structural)*
Contractor: *Bay State Construction, Inc.*



WALL SECTION



Taylor Photographics

AT&T Information Services

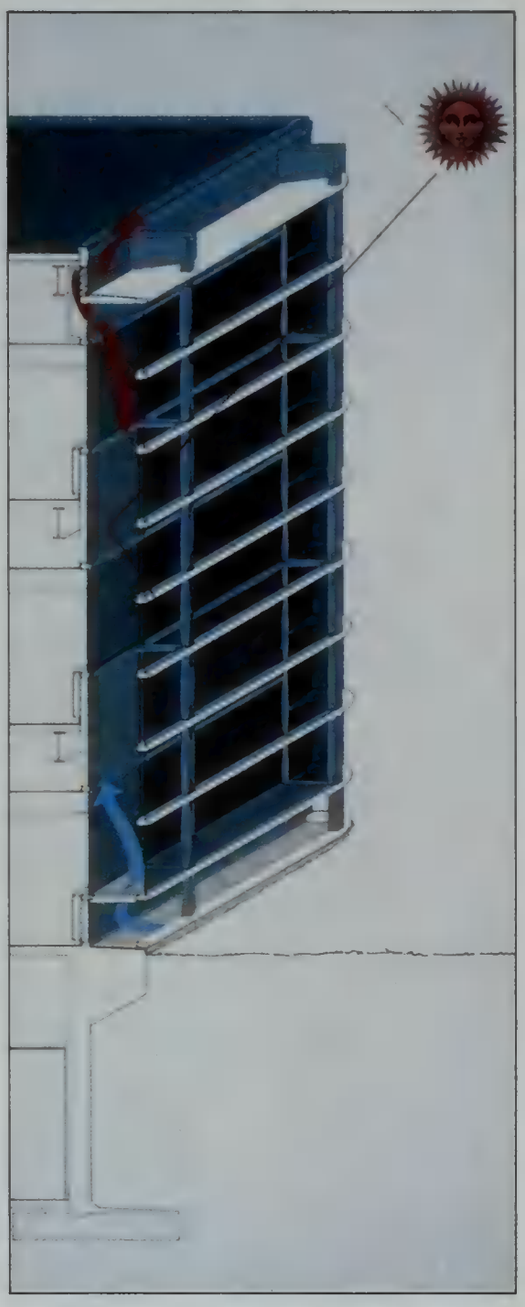
Advancing the state of the art in New Jersey

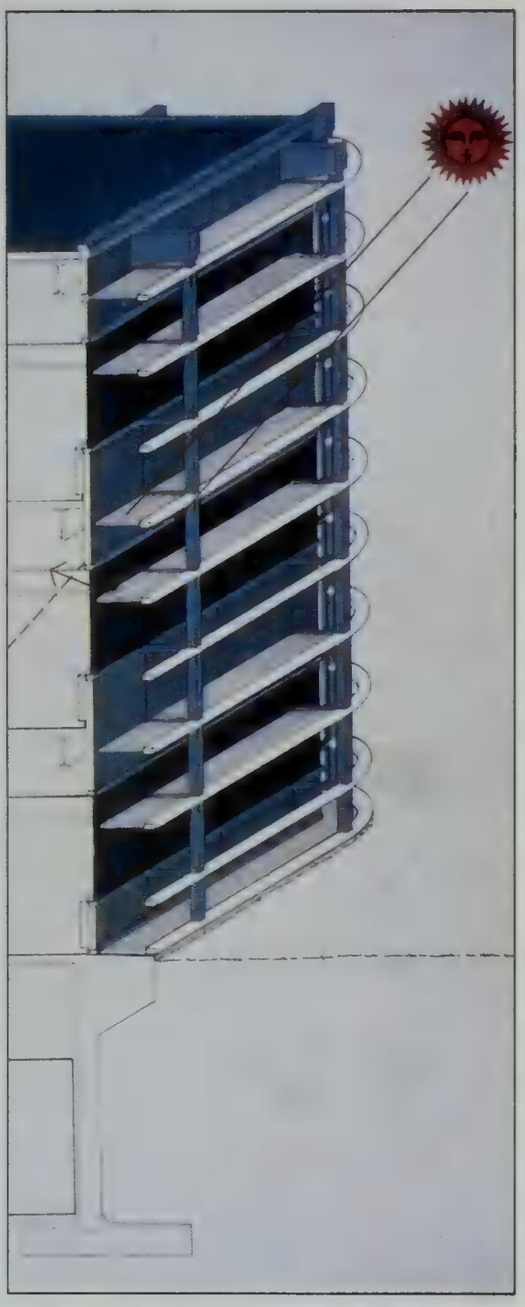
The design of the envelope of this three-building, 383,000-square-foot office-building complex made an energy-saving daylighting scheme possible. The Hillier Group devised a modular curtain-wall system with an appearance that is uniform yet capable of different configurations for different orientations. The east and west elevations of the building use a two-layer curtain wall with a two-and-a-half-foot insulating air space (above). The air space holds heat from the winter sun. In the summer, vents in the thermostatically controlled airspace automatically open, releasing built-up heat. On the south elevations, horizontal sunshades (opposite bottom) bounce high-angle spring and fall sun onto ceilings. The shades prevent direct entry of overpowering low-angle winter sun. The well-insulated north elevation is subject to minimal solar-heat gain. On the interior, sensors step lighting down on bright days, taking full advantage of daylight. According to Jordan Fox, of consulting engineers Flack & Kurtz, the double-wall system would have multiplied energy savings had it been used for winter heat reclamation as originally designed. The design was simplifed, however, to reduce construction costs. *J. S. R.*

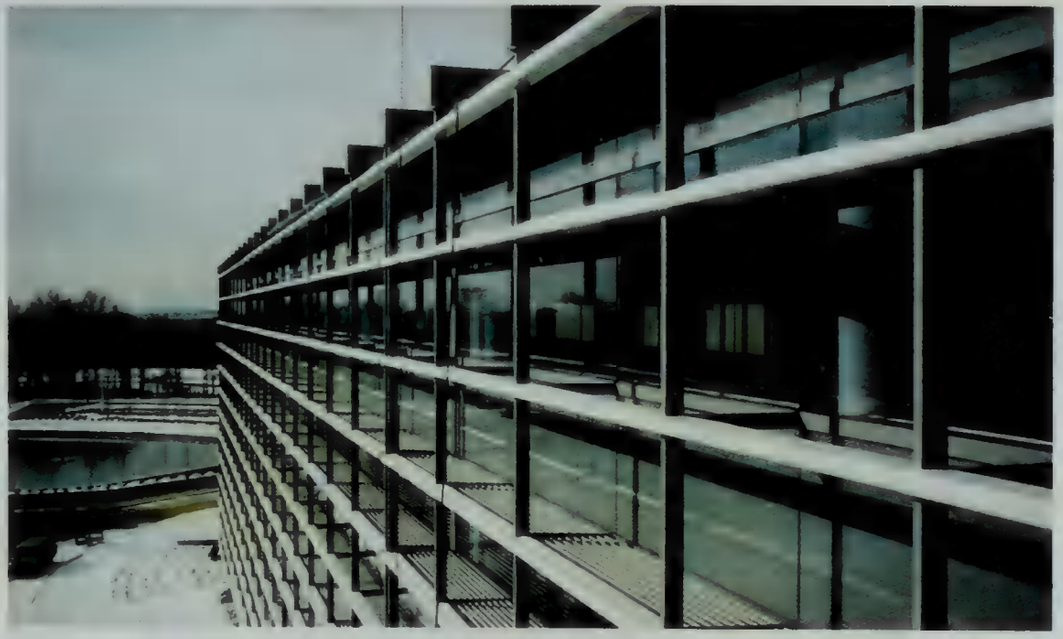
In New Jersey winters, where sunny days are frequent but temperatures can range from the low 30s to single digits, the airspace between the outer and inner curtain wall captures solar heat, insulating the wall (near right diagram). In summer, the stack effect vents hot air at the top. The outer wall is single-glazed with a low-E coating. The inner wall is uncoated insulating glass.

Blinds were originally installed within the insulating space to be operated automatically in response to the sun angle. The operating motors, however, were unable to synchronize operation of the blinds across the entire elevation as intended. Conventional interior blinds have since been installed. On the south elevation, fixed sunshades direct high-angle sun to bounce off the ceiling deep into the space. The shades prevent direct sun from overlighting work surfaces (far right diagram).

Credits
AT&T Information Systems Bridgewater, New Jersey
Architect: *The Hillier Group—Steve DeRochi, principal; Robert J. Kady, project manager; Ernest Hunt, project coordinator; Tetsu Amagasu, designer*
Engineers: *Flack & Kurtz (mechanical, electrical, plumbing), Paulus Sokolowski & Sartor (site, civil, structural)*
Construction Manager: *Lehrer/McGovern*







CALL FOR ENTRIES

RECORD HOUSES 1994

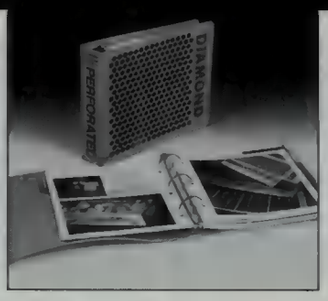
The editors of ARCHITECTURAL RECORD announce the 39th annual RECORD HOUSES awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There are no entry forms or fees, although submissions must include plan(s), photographs (transparencies, slides, or prints), and a brief project description—bound firmly in an 8½ by 11 in. folder—and be postmarked no later than October 30, 1993. Winning entries will be featured in the 1994 RECORD HOUSES. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate postage.

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Product Literature/Metal



400. No-mar stainless steel
A color brochure illustrates a new, unbroken finish available for architectural stainless-steel sheet, one that shows no directional buff or grinding lines. Inventoried in several gauges and sheet sizes, the standard finish is mirror-polished #8; bronze, blue, gold, red, green, and black are available on special order.
Clark Metals, Gardena, Calif.



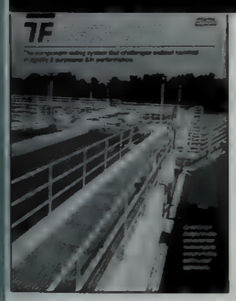
401. Perforated-metal guide
An Applications Directory provides the designer with a single-source reference to planning and creating projects using perforated metals, illustrating specific patterns appropriate to various gauges and finishes. Diamond Mfg. Co., Wyoming, Pa.



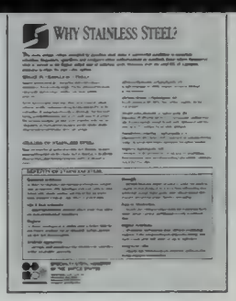
402. Metal roofs for schools
Two colorful brochures highlight the design benefits attributed to standing-seam roofing, illustrating several award-winning school reroofing projects. Also covered are life-cycle cost analysis, recommended insulation materials for metal roofs, and installation techniques. American Iron & Steel Institute, Washington, D. C.



403. Foundry
Though specializing in fine-art castings, the facility founded by sculptor J. Seward Johnson, Jr. has expanded its expertise in induction welding, casting, and mold-making to architectural custom-design and restoration projects. Recent work includes huge ornate lampposts for New York City's Bryant Park. Johnson Atelier, Mercerville, N. J.

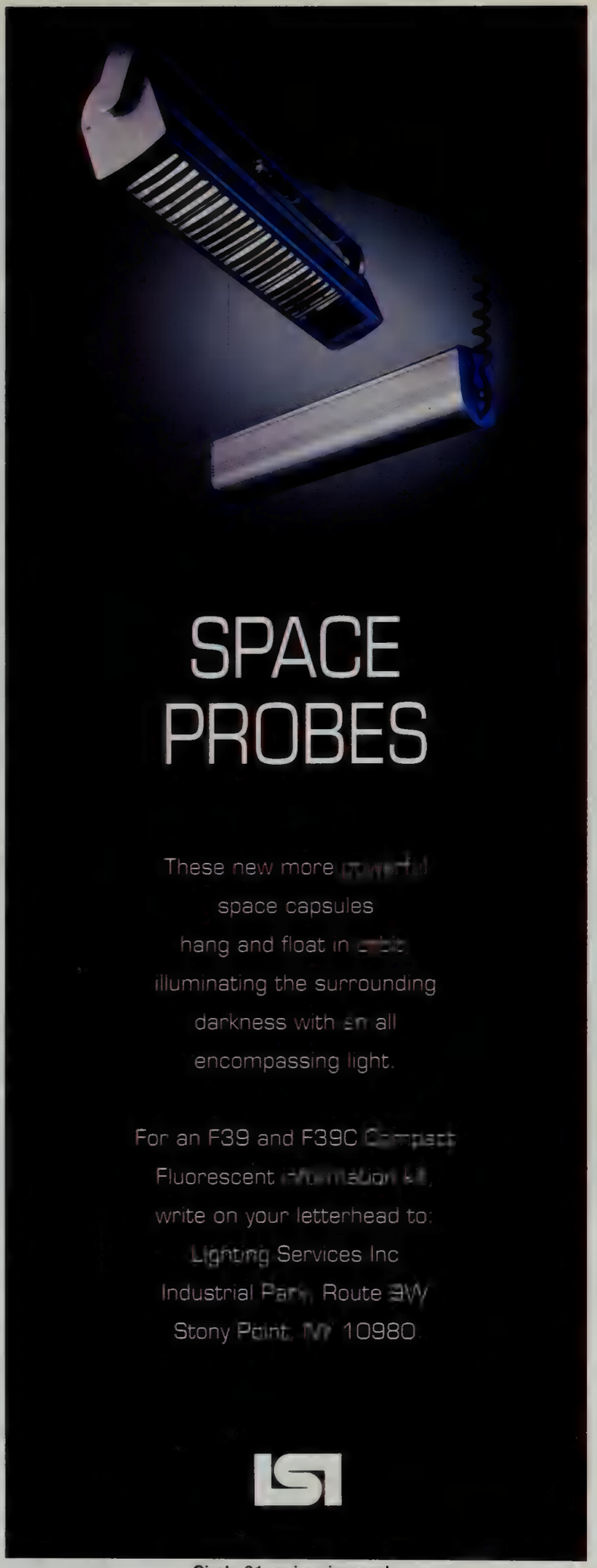


404. Component railing system
Fabricated from pre-anodized aluminum pipe, cast aluminum/magnesium fittings, and stainless-steel hardware, shop-assembled railings are said to be as rigid as welded rail. Five CAD disks provide complete railing details, as well as specs on ladders, gratings, and slide gates. Thompson Fabricating Co., Inc., Birmingham, Ala.*



405. Stainless-steel guide
A data sheet provides concise information about grade classifications of stainless steel, lists standard dimensions for various products (such as sheet, strip, plate, bar, wire, pipe, and extrusions), and describes finish options. Specialty Steel Industry of the U. S., Washington, D. C.
Continued on page 121

**Product data on CAD disk*
For more information, circle item numbers on Reader Service Cards



Circle 31 on inquiry card

WE WERE LOOKING FOR A WINDOW COMPANY THAT WOULD HELP THE GOVERNMENT RESIST LEAKS AND INFILTRATION.



The GSA contract called for random testin to verify the air infiltrati and water resistance specifications of the building's glazing systen The curtain wall, storefront, doors, and windows all had to perform to spec or the would be rejected. We wanted to work wit a manufacturer that could give us the kind products and performance we needed to ke the job moving on tim and on budget.

We awarded the job to EFCO.

General Services Administration Building, Oakland, CA. *Architect*: Kaplan, McLaughlin & Diaz. *General Contractor*: Walsh Construction Co. Products: Custom 3600 Curtain Wall, Series D-500 Entrance, Series 2000 Sliding Glass Doors, Custom Series 890 Equa-Vu® and System II® Windows.

EFCO

1-800-221-4169

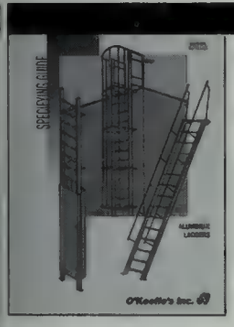
Circle 32 on inquiry card



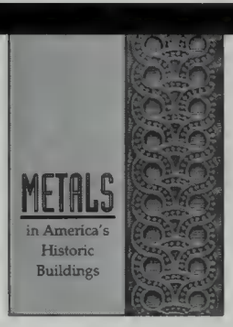
406. Welded spiral stairs
Made-to-order spirals are shipped as fully fabricated units and need no hubs or bolts. A catalog illustrates wood, steel, and aluminum stairs used in churches, lofts, stores, and homes. Rail options include ornate ironwork to match period details. Stairways, Inc., Houston.



407. Metal graphics
A four-page brochure highlights some of the sheet-metal finishes created by combining multi-directional and non-directional brushing, sandblasting, polishing, or electroplating of gold, mickel, or copper. Standard patterns are available, and almost any custom design is possible. Surface Design+Technology, Hialeah, Fla.



408. Aluminum access ladders
Cage, access, and ship ladders available in dimensions and tread configuration to meet both standard and custom requirements of industrial applications. An eight-page catalog illustrates all ladder types with 1/4-scale detail drawings. O'Keeffe's, Inc., San Francisco.*



409. Historic metal elements
A 1992 revision of *Metals in America's Historic Buildings* reflects the most recent conservation technology covering the repair of building parts of tin, lead, zinc, copper, iron, aluminum, and other alloys. Photos illustrate before and after; all techniques are explained step-by-step. $10 charge. National Park Service, Washington, D. C.



410. Embossed-metal doors
Designs described as permanent and abuse-resistant are pressed into stainless steel, bronze, and aluminum sheets. Other metal-door options include juxtaposed surfaces and patterns in five designs, and System 8, which combines metal faces with an unframed glass-panel meeting stile. Forms+Surfaces, Santa Barbara, Calif.



411. Finish standards
Metal-alloy and surface-treatment options for architectural metal have been standardized to facilitate design coordination and specification. A fabricator's program samples 28 different finishes; metals include aluminum, stainless steel, bronze, and copper. Tomco Metal Standards, Cleveland.
Continued on page 129

**Product data on CAD disk*
For more information, circle item numbers on Reader Service Cards.

We've got a better idea than a better mousetrap.



We're Bill and Craig Markcrow. A few months ago we invited you all to enter our *Urban Outhouse Design Competition*, and for a while there we thought that *all* of you really would. We received over 2,000 inquiries about the competition and, finally, 311 entries from everywhere in the United States, from the state of Georgia to the Republic of Georgia and fourteen other countries, from Japan to Estonia. Five graduate schools of design used the competition as class projects.

Thank you, every one of you. Especially for making it all so much fun. We told you to enjoy yourselves, and you did. One entry was shaped like a huge fire hydrant (with huge attendant dog, of course), another like an Ionic column, and one had plate glass walls that turn opaque (we hope) when the outhouse was in use. In the words of our panel of judges, the entries "ranged from serious to frivolous to bizarre."

How's this for a distinguished panel?



The judges? Philip Johnson, Henry Meyerberg, Karen Stein, Tucker Viemeister and Lella Vignelli. And we thank every one of those gracious, talented people, too. They met in New York last May, near our Grand Army Plaza urban outhouse site, and chose the winning designs, which are:

- $5,000 Grand Prize Winners: Cynthia Sours and John White of Paris, France;
- $2,000 Second Prize Winner: Sheila Riley of Santa Fe, NM;
- $1,000 Third Prize Winners: Irwin Berman, Ed Cheshire and Harlan Hambright of Brunswick, Georgia.

The eight $200-winning Runners-Up, in alphabetical order, are:

- John Beckmann and Margaret Janik, New York, NY;
- Kyra Clarkson, New Haven, Connecticut;
- Dennis DeLap, Sycamore, Illinois;
- Paul Lewis, Peter Pelsinski, Marc Tsurumaki and Lawrence Turner of Peter Moore Associates, New York, NY;
- Jun Nagase, Tokyo, Japan;
- Ira Smith, Cambridge, Massachusetts;
- Makoto Sei Watanabe, Tokyo, Japan;
- Allen Wilpon and Maria Isabel Wilpon, New York, NY.

Influence and affluence, through effluence.

We'd hoped this competition would generate as much interest (and publicity, of course) as our first, Design-A-Gazebo contest (140 entries) did three years ago. But the *Urban Outhouse Design Competition* proved that there is nothing as compelling as, uh, fundamental concerns. It was written up in *The New Yorker* and many other publications, and featured on several radio shows. And New York's *Municipal Art Society* was so intrigued it mounted a summer-long exhibition of the winning designs—*now extended through October 31.* Not bad for a little slate company from Vermont.

P.S.: By the way, go see the new Middle School Building at The Shipley School, Bryn Mawr, Pennsylvania.

VERMONT STRUCTURAL SLATE COMPANY, INC.

Fair Haven, VT 05743
Phone: 1-800-343-1900.

Computers/MiniCad+

Continued from page 33

3-D (by rotating or extruding), but as is common with 3-D software that can run on small computers, 2-D and 3-D objects can coexist in the same drawing; the 2-D object is not a subset of the 3-D.

As with many Mac packages, MiniCad+ also uses an integer-based database to define entities in your drawing. This allows it to run quite well on systems that do not have the FPU floating point math coprocessor. Screen redraws are slower, however.

The built-in database is based on a spreadsheet model that's particularly easy for architects to grasp. As with a printed table, rows are data records and columns are fields. MiniCad+ can also import data files into drawings. All this facilitates the development of quite fancy macros.

MiniCad+ supports TrueType and scaled fonts. It is System 7 "friendly" but does not support balloon help; tools and modes are identified in the drawing window. It will run in as little as 2 MB using System 6, but 4 MB is more realistic—and mandatory for System 7. *Circle number* **305**

Automated Catalogs

Continued from page 33

details) as a stand-alone, and a third does product specifications in a format that can be edited in word-processing software.

Marvin Windows & Doors had another problem; it sells 11,000 standard sizes and an almost infinite variety of custom products. So it developed a little stand-alone CAD program that runs in Windows; you design your item, and save it as a DXF file that can be picked up by just about any CAD package, in Windows, DOS, UNIX, or Macintosh. It also has a version that works inside AutoCAD (DOS version) itself (these packages are versions of the Marvin Design System), and a separate price guide (Marvin Quote System) on disk.

Sweet's Electronic Publishing (a division of McGraw-Hill) released its first CD-ROM disk this spring, with about 500 vendors' products listed. CAD users can paste information from the disk to drawings and specification text. The disk is cross-referenced to the multi-volume catalog sets. Sweet's promises better search software in future disks.

Another company, *EPIC* (Electronic Product Information Corp.) has been developing electronic catalogs for many vendors, and is now cooperating with Cahners—publisher of magazines for construction and specification professionals—also as a CD-ROM catalog.

These firms answer an old question—if some vendors computerize, thus making their products easier to specify, would it be unethical to ignore the vendors who don't? The answer: They are all computerizing anyway. And, broadly speaking, they are all computerizing the same way—with price-estimating and specification databases, standard file formats for their drawing data, and so forth.

You'll soon be able to use search software built into your CAD program to search everyone's catalog at once. Anaheim is one approach (and the vendors' software will need some modification for seamless use). Softdesk and other suppliers of add-ons—especially for Windows, Windows NT, and UNIX CAD packages—will be there, too.



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Conner Drives Right Past Colorado.

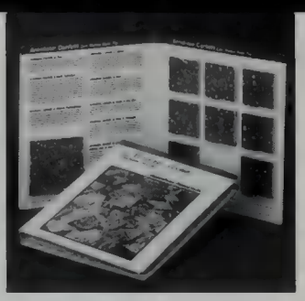
Feature	Conner Tape•Stor 250 MQT w/ Backup Basics Software	Conner Tape•Stor 250 MQT Plus w/Backup Exec Software	Colorado DJ-20
Data rate	3 MB/min Industry Standard	3 MB/min Industry Standard	NO
Free 3M Tape	YES	YES	NO
DOS/Windows Software	YES	YES	NO
3 Year Warranty	YES	YES	NO
Full Cartridge Insertion	YES	YES	NO
Suggested Retail Price	$479.99 (add $149.99 for 250 MB including a formatted 3M minicartridge)	$599.99 (add $149.99 for 250 MB including a formatted 3M minicartridge)	$449.99

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412. Carpet-pattern options
A colorful, 40-page catalog illustrates all standard Commercialon cut-pile carpeting designs, including patterns developed for hospitality and corridor use. Custom colors and patterns, such as corporate logos, offered at a 300-yd minimum. J&J Industries, Dalton, Ga.



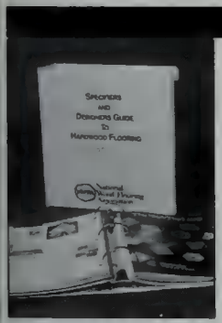
413. Multifleck cast marble
An architectural sampler contains chips of the entire color palette for new Confetti-pattern flooring, which is made of recycled Armstone tiles. A lively, multicolor pattern, it is said to be particularly suited to hospitality applications. PermaGrain Products, Inc., Media, Pa.



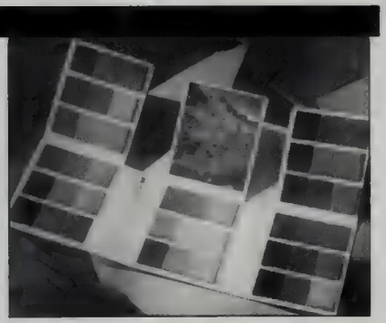
414. Healthcare furnishings
An eight-page capabilities brochure highlights furniture elements for many medical and patient-care functions, from patient room and nursing station to back office and pediatric-play areas, illustrating tables, chairs, storage, and other products from five Haworth companies. Haworth, Inc., Holland, Mich.



415. Laminated fabrics
Decorative and protective laminating services described in a 32-page catalog include paper backing for fabric wallcoverings, vinylizing upholsteries, and stain repellent for materials such as grass cloth. Coordinating window treatments, wallcoverings, and upholsteries is a specialty. Trade-price list. Custom Laminations, Inc., Paterson, N. J.



416. Wood-flooring guide
A resource book for architects and designers contains general information on the industry, technical/performance data, and product and design information on specific lines of hardwood flooring. Now in a binder format, the extensive guide is available without charge to design professionals. National Wood Flooring Association, Manchester, Mo.



417. Cut-and-loop carpeting
For healthcare and corporate use, Contours 30-oz carpet is said to be the first completely solution-dyed style to have integrated patterns, not printed or applied. A sampler holds an 18- by 18-in. piece, and swatches of coordinating border and accent products. Mannington Commercial, Calhoun, Ga.
Continued on page 131

**Product data on CAD disk*
For more information, circle item numbers on Reader Service Cards.

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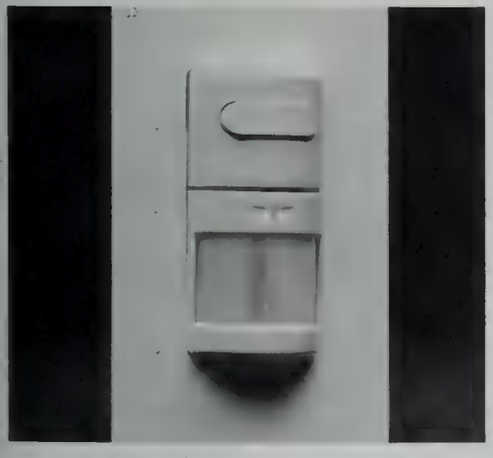
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311. Windows-format CAD
Said to retain all of the performance features of the Macintosh-based original, ArchiCAD for Windows can read and write .dwg format files. It can generate elevations, 3-D sections, renderings and animations, and includes a parametric object library. Graphisoft U. S., Inc., S. San Francisco, Calif.



312. Smaller size, wider coverage
Wall and ceiling occupancy sensors come in a new housing said to be 50 percent smaller than previous models, but with increased coverage. Novitas, Inc., Culver City, Calif.



313. Low-profile sensor switch
A compact design fits behind a decorative wall plate, replacing existing devices. An integrated light-level sensor override keeps lights off if a user-set ambient-light level is present. Watt Stopper, Santa Clara, Calif.
Continued on page 127

Important Information

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From January 1989 to February 1992, Manville® Roofing Systems produced UltraGard® Premier, a glass mat faced phenolic foam roof insulation, which is no longer manufactured by us.

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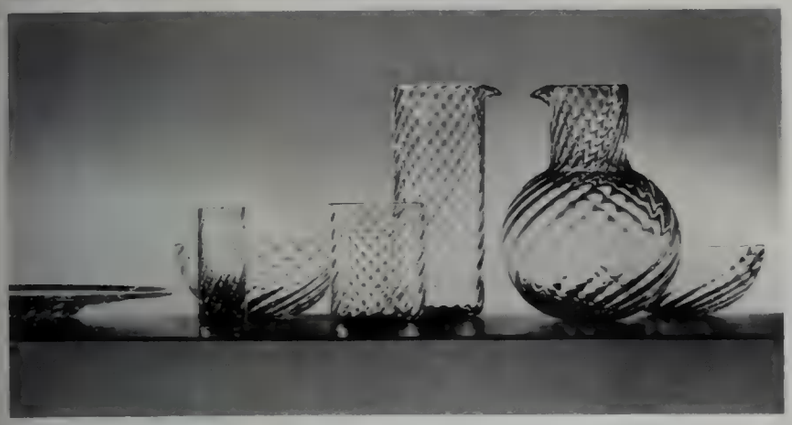
Aquafleck will look as good five years from now as it does today. Because application and clean-up are so simple, it's easier to get jobs done on time. And one more reason for the ages—Aquafleck generates no hazardous waste. A definite victory for responsibility.

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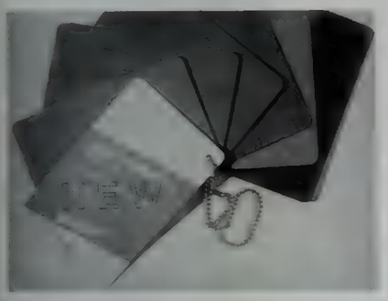
314. Vignelli at the bar
The first in a series of high-design handmade American glassware, Massimo Vignelli's carafe and tumblers capture refracted light in a Venetian manner. Priced in the $50-$500 range, the Sequence Collection is aimed at what the maker hopes is a new generation of design-aware consumers, and will include pieces by Monica Guggisberg and Richard Meier. Steuben, New York City.



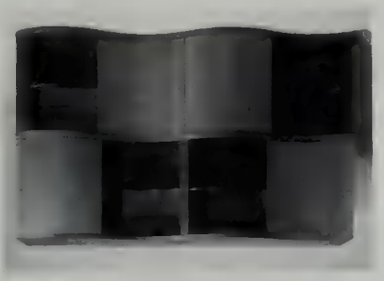
316. Economically-scaled stacker
Architect Brian Cox says his lean Gallery Chair uses the bare-bone construction and flexible function of the "cheap seats" of a theatrical gallery. Bernhardt, Lenoir, N. C.

317. Inspiration strikes twice
Aldo Rossi's new espresso pot for Alessi resembles his Teatro del Mondo in Venice. Made of aluminum, with knob and handle in blue or black, it's called (naturally) Ottagono. Markuse, Woburn, Mass.





315. Colorful HPL woodgrains
Produced in soft yellow, copper, blue, and green shades, woodgrain-pattern laminates have the muted look of pastel-stained woods. Called, with Italian flair, Serie Acero Legni Colorati, surfacing materials come in a matte finish. Abet, Inc., Teterboro, N. J.



318. Franco-Italian
A prize winner at last year's Contemporary Furniture Fair, the Zadig modular storage unit was created by Milanese designer Emilio Rossi for the French manufacturer MCB (Meubles Chantiers Baudet), a major supplier to European hotels and public buildings. Derekshenz, Farmington, Ga. ■

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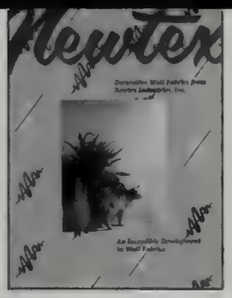
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Circle 39 on inquiry card

Product Literature/Interior Materials

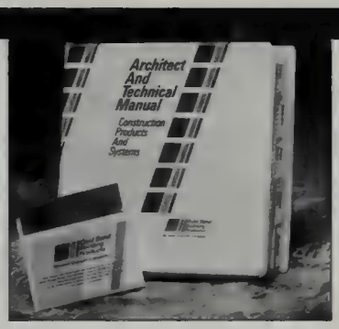




418. Versatile wall treatment
A Surface Systems binder supplies application photos, product data, installation details, and pricing information for this new interior-wall technique. Surfacing options include wood veneers, faux finishes, lightweight cement, and metal-faced panels, carried on three decorative and defining grid styles. Marlite, Dover, Ohio.

419. Tough and textured
Non-toxic and flameproof, Newtex wallcoverings are woven of Vitron fibers in several distinctive textures, all said to resist the impacts, harsh cleaning, and scuffing common in public-area and industrial applications. Material is designed for use with site-applied decorative topcoats. Newtex Industries, Inc., Victor, N. Y.





420. "Artistic" metal ceilings
An eight-page brochure describes how multipanel linear metal-ceiling systems allow varying panel widths to be combined on the same carrier, and to have rounded Softwave panels clipped on in-between for a site-specific decorative effect in a selection of 70 available colors. Hunter Douglas Architectural Products, Duluth, Ga.

421. Gypsum-plaster products
Available in both paper and CAD format, this maker's Architect and Technical Manual for Construction Products and Systems includes performance data, drawings, and substrate/installation information for board, plaster, plaster veneers, prefinished panels, and other products. Gold Bond Building Products, Charlotte, N. C.*



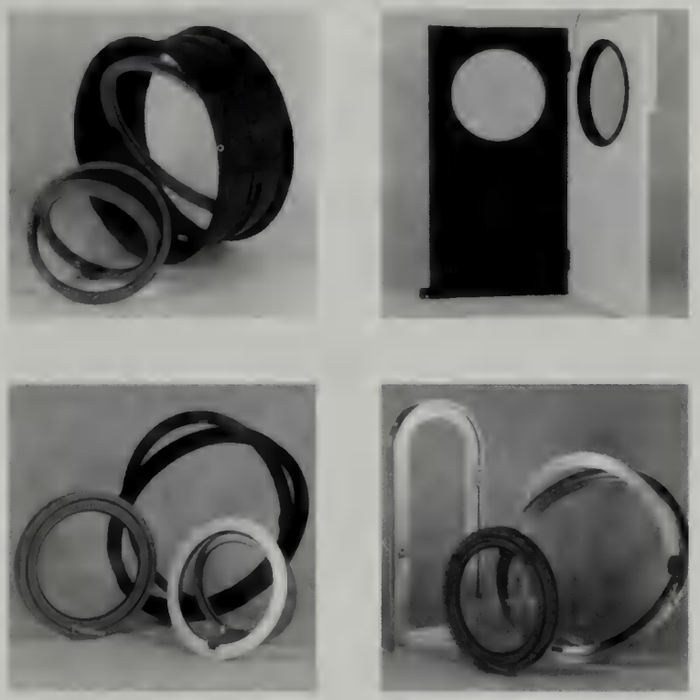


422. Rubber-based flooring
An architectural catalog covers all Nora products, including Norament, a pastille-type floor offered in over 50 colors, two-tone effects, and nondirectional textures, and Noraplan, a more traditional, smooth surface. Rubber floors are said to retain good appearance in very-high-traffic environments. Freudenberg Building Systems, Lawrence, Mass.

423. Hospitality textiles
An eight-page Technology Update discusses soil- and stain-repellent, antimicrobial, self-extinguishing, and static-protective fibers used to construct jacquards, velvets, dobbies, tapestries, and other contract textiles. Samples available to design professionals. Douglass Industries, Egg Harbor, N. J.
Continued on page 133

**Product data on CAD disk*
For more information, circle item numbers on Reader Service Cards.

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...Leopold, Kinney & Associates, Hilton Head SC • Architect: Geheber Lewis Associates, Atlanta GA
...General Contractor: Graves Commercial Builders, Hilton Head SC
...Roofing Contractor: Ponce Smith Roofing, Hilton Head, SC • Metal Roofing System: MBCI's Craftsman SB-12 Polar White

Circle 42 on inquiry card

Product Literature/Interior Materials



424. Architectural drywall trims
A Final Forms bulletin highlights extruded-aluminum trims for interior and exterior use. Drawings and color photos illustrate custom-made friezes, intersections, end caps and corners, and reveal inserts, plus standard drywall and plaster trims. Drywall light coves are a specialty. Gordon, Inc., Shreveport, La.



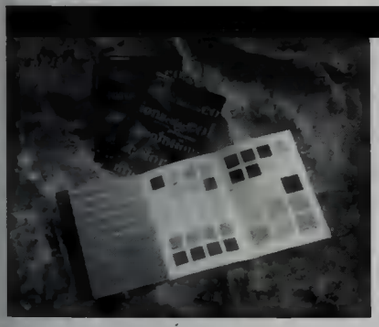
425. Vinyl wallcoverings
An eight-page brochure illustrates corporate, healthcare, hospitality, and retailing applications of Guard contract-vinyl wall treatments in both 27- and 54-in. widths. Product features include stain-resistant top coats; non-toxic mildewcide; and a wide range of custom-pattern options. Columbus Coated Fabrics, Borden, Inc., Columbus, Ohio.



426. Impact-protection selection
The Boston Bumper, an interlocking, resilient wall-protective trim system, is now available in an expanded range of 18 standard vinyl colors, offering an economical method of customizing a high-traffic interior. Custom-color products can match paint, laminate, tile, or other materials. Boston Retail Products, Medford, Mass.



427. Decorative noise control
An architectural brochure describes Acousti-Tack wall panels and Soft Sound ceiling baffles and tiles. Built with a fiberglass acoustical core, fabric-covered wall and ceiling treatments can follow convex or concave walls, radius at edges, and be formed in custom shapes. Golterman & Sabo, Inc., St. Louis, Mo.



428. Grid and tile guide
A six-page Color Solutions paint-finish guide is offered to help architects and designers better integrate ceiling colors into overall interior color schemes. Includes swatches of 24 prepainted-tile colors, 32 grid colors, and nine Artisan panel colors. USG Interiors, Inc., Chicago.*



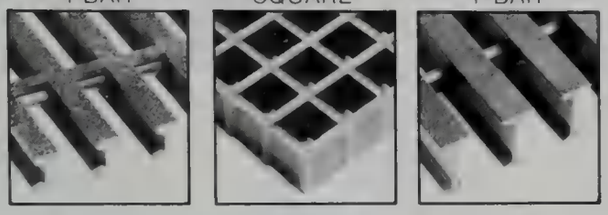
429. Fire-rated acoustic foam
Sonex 1 is a flame-resistant version of Sonex anechoic-wedge-design sound insulation. An optional Hypalon coating allows sponge-and-hose cleaning, and Class 1 performance values permit use in high-risk occupancies. Illbruck, Minneapolis. ■

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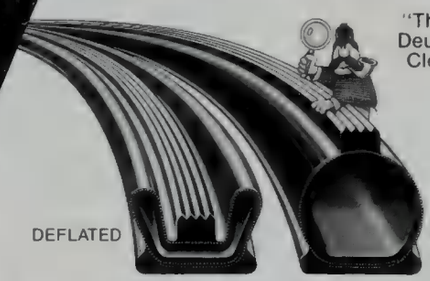
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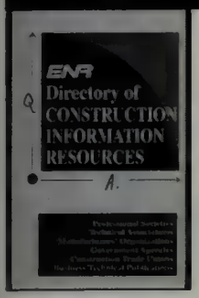
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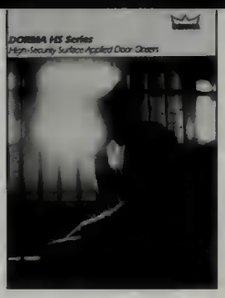
Circle 45 on inquiry

PROJECT: Seamen's Church Institute, New York | ARCHITECT: James Stewart Polshek and Partners | PHOTOGRAPHY: © [illegible] ESTO

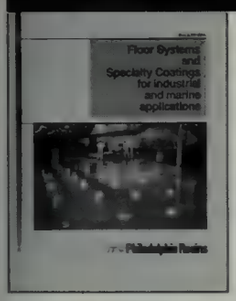
Product Literature



430. Design/construct reference
A 562-page Directory gives contact name, address, and phone/fax numbers for over 1,600 professional and technical associations, manufacturers groups, and government and code organizations, cross-referenced by CSI format and appropriate key word. Flyer includes a sample page and order form. Engineering News Record, New York City.



431. Secure door closers
Constructed to meet the requirements of correctional facilities, banks, schools, and other public-access buildings with significant potential for vandalism, escape, or damage to door hardware, HS 7800 surface-applied closers have a full metal cover and reinforced, one-piece arms. DORMA Door Controls, Reamstown, Pa.



432. Industrial floorings
Heavy duty, non-skid floors, self-leveling epoxy floors, chemical-resistant urethane coatings, and other protective flooring and coatings are described in a six-page bulletin. Most products meet OSHA, USDA, and state VOC regulations; all color options are illustrated. ITW Philadelphia Resins, Montgomeryville, Pa.



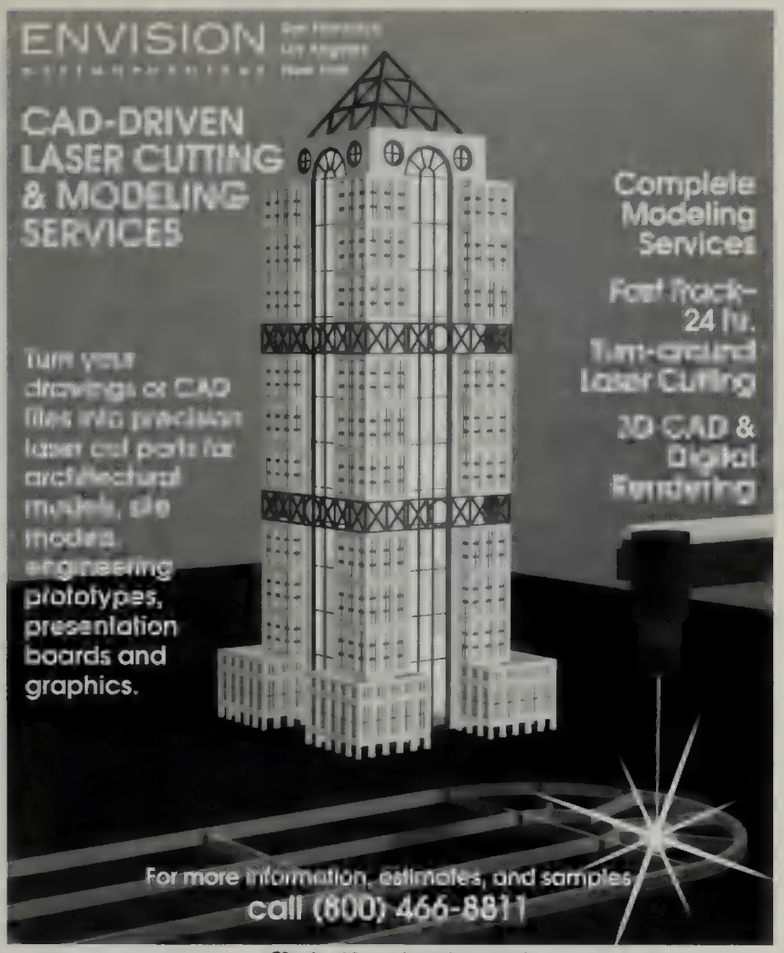
433. Modified-bitumen roofing
High-profile projects, such as the Library of Congress, are featured in a 24-page architectural brochure on Siplast roofing systems. Product coverage for Paradiene, Parafor, and Veral materials includes technical data, details, slope requirements, and fastening- and insulation-selection charts. Siplast, Inc., Irving, Texas.



434. Panelized cedar siding
A brochure illustrates features such as an interlocking, watertight vertical-end joint (which eliminates the "panel look") and asphalt-coated fiberglass mats premounted under each shingle course. Panels with up to five courses offer a choice of exposure, cedar grade, and decorative buttlines. Cedar Valley Shingle Systems, Hollister, Calif.



435. Interlocking floor mats
A self-draining floor suggested for wet areas such as pool decks, locker and shower areas, saunas, and exercise rooms, Dri-Dec snap-together and roll-type mats are made with oxyB1 vinyl, an EPA-approved antifungal and bacteriostatic compound. Brochure shows all seven colors. Dri-Dek Corp., Naples, Fla.
Continued on page 137



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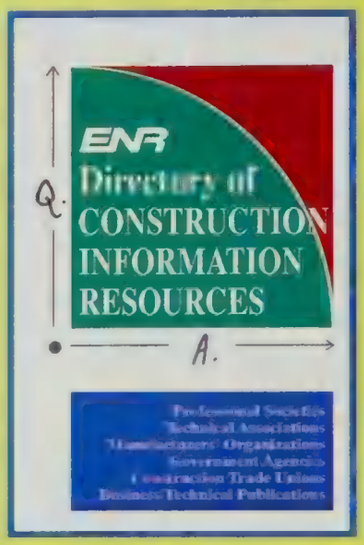
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Manufacturer Sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 62-71
Carre d'Art, Nimes
Sir Norman Foster and Partners, Architect
Curtain wall and windows: CFEM Facades. Concrete frame: Meridonale des Travaux. Glazing: St. Gobain. Limestone flooring: Hiross. Door and cabinet hardware: D-Line.

Pages 78-83
The Metropolitan Community Church of Washington, D. C.
Suzane Reatig Architecture
Storefronts: Kawneer Co., Inc. Split-face CMU: Fizzano Brothers, Inc. Entrance: Swingin Door, Inc. Acoustic ceiling: USG Interiors. Coatings on metal: TNEMEC. Paint: PPG (Duron). Porcelain stoneware tile: Graniti Fiandre. Wall-mount uplights: Limburg. Exterior lighting: BEGA.

Pages 84-91
Davis Museum and Cultural Center, Wellesley College
Rafael Moneo, Architect
Brick: Morin Brick Co. Precast: James Farina Corp. Single-ply roofing: Carlisle SynTec. Standing-seam roofing: Lead-coated copper, fabricated by C&C Cornice. Aluminum-framed windows: Kawneer Co., Inc. Solar-control film: 3M Co. (Scotch Tint). Entrance: Hi-Rise Revolving Door Corp. Wood doors: Weyerhaeuser. Schist flooring and custom tables: Ashfield Stone Quarry. Silicone stone finish: L. M. Scofield (Lithofin). Red oak plank flooring: Tarkett. Carpeting: Prince Street. Suspended exterior fixture: BEGA. HID and track lighting: Edison-Price. Linear fixtures: Litecontrol. Acoustic ceilings: Armstrong. Grid: Donn. Latex paints: Devoe & Reynolds.

Pages 92-95
Click Model Management, Inc.
Hodgetts and Fung Design Associates, Architects
Windows: U. S. Aluminum. Stucco: Highland Stucco. Clear and green-tinted glass: Libbey-Owens-Ford Co. Exterior signlighter fixtures: Day Brite-Benjamin. Recessed downlights: Halo. Cabinetwork: James Douglas Carpentry. Paints: Frazee. Desks, booking tables: custom by architects; laminate surfaces: Wilsonart. Low table: designed and fabricated by architect; top: Alucobond Technologies, Inc. Column-mounted spots: Smith Victor. Cove lighting: Prudential.

Pages 110-113
East Stroudsburg University
Kieran, Timberlake & Harris, Architect
Open-joint granite panels: Cold Spring Granite Co. Three-dimensional stainless-steel clip system: custom by architects. Windows: EFCO. Waterproofing: W. R. Grace Co. (Bituthene). Integrated ceiling troffers: custom by architects, fabricated by MSG Associates. Student-center seating: ICF (Jacobsen Chair). Tables: Berco.

Pages 114-115
Southgate Commercial Center
Jonathan Levi, Architect
Iron-spot brick (glazed and face): Endicott. Integrally colored stucco: Tamms Corp. Storefronts and fixed windows: Closure Co.

Corrections

- Credit for the Spiegel Corporate Headquarters Building [RECORD, July 1993, page 68] should have listed Grenald Associates as Lighting Designer, excluding office areas and the cafeteria, which were lighted by Horton Lees.

- OWP&P was the firm that came in third in the *Chicago Tribune* redesign contest for the Cabrini Green housing project, not OWP&T [RECORD, July 1993, page 27].

- In the August 1993 issue of RECORD, page 25, the aerial composite of Yerba Buena Gardens (photo 1) should have been credited to View by View.

- Photo 315 on page 47 of the August issue should have been described as an image by Graphisoft.

- Credit for the landscaping of Arata Isozaki's planned Bass Museum expansion [August, page 27] should have been given to the landscape-architect firm of Savino & Miller Design Studio, Miami Beach.

Clarification

- A quote in our story on Hurricane Andrew [August, page 30] was inadvertently misattributed: "Damage followed the rigid lines of subdivisions, not the whimsy of the wind. Construction quality and design largely determined the degree of hurricane damage." The quote does reflect some of the conclusions of Ronald F. Zollo's report ("Hurricane Andrew: August 24, 1992"), but was in fact drawn by Zollo from the *Miami Herald.* ■



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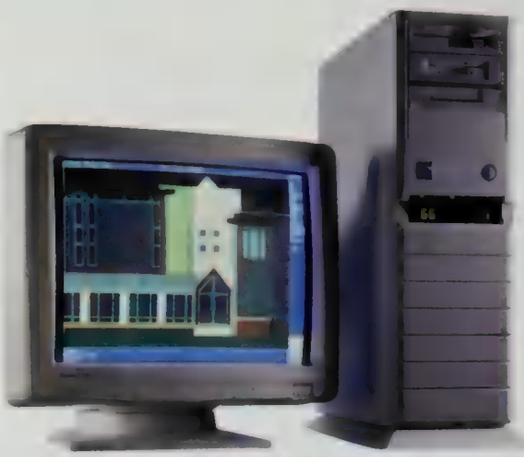
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Product Literature



436. Water-saving toilets
A color folder illustrates all of this maker's 1.5-gal. toilets, including gravity-fed, flushometer/tank, and flush-valve units, as well as 1-gal. urinals for commercial installations. Individual spec pages for each design give plumbing and dimensional data. Briggs, Tampa, Fla.



437. Ground-source heat pumps
Booklets cite the benefits of "earth energy" for space heating and cooling in both home and office. Three types of geothermal systems—closed-loop, direct expansion, and open-loop—are said to insure constant interior temperatures with minimal energy use and no emissions. 1-800-35-NYSEG. N. Y. S. Electric & Gas Corp., Kirkwood, N. Y.



438. Forest husbandry
A color foldout describes the environmental practices of land owners in the American Tree Farm System. The program selectively manages forests through natural reseeding of hardwood species such as oak, hard maple, yellow birch, and beech for use in fine furniture, cabinetry, millwork, and flooring. Hardwood Mfrs. Assn., Memphis, Tenn.



439. Furniture from carpeting
Benches, curbing, and other site fixtures are being constructed from recycled carpet materials. A folder highlights a major mill's efforts to "close the loop" by minimizing waste in the production, maintenance, and disposal of Powerbond RS carpet, which itself can be installed over existing carpet. Collins & Aikman, Dalton, Ga.



440. Wood from plastics
Futurewood, made entirely from post-consumer waste plastic, is a dense, intergally colored material that is said never to splinter, rot, or need painting, and that can be worked with conventional tools just like lumber. Photos show Futurewood benches, docks, decking, and tables. National Waste Technologies, Inc., Ronkonkoma, N. Y.



441. Plywood substitute
A 10-page brochure supplies technical data and in-use photography on building products made (since 1909) from recycled newsprint. Wallboard, underlayments, sound-control boards, and structural decking materials are unaffected by fluctuations in lumber prices. Homasote Co., West Trenton, N. J. ■

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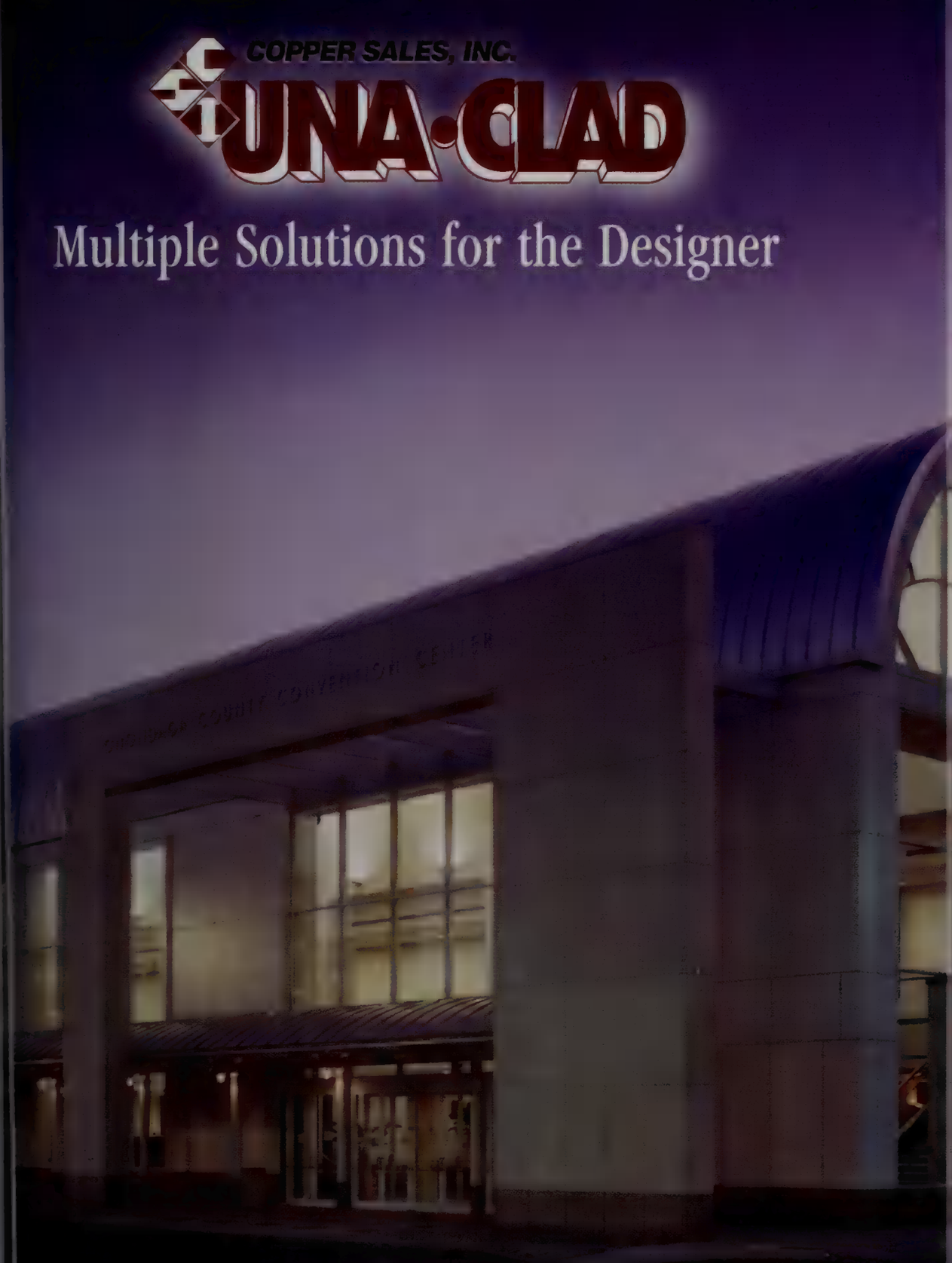
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COPPER SALES, INC.

UNA-CLAD

Multiple Solutions for the Designer



JOB NAME: Onondaga [illegible] Center, Syracuse, NY
ARCHITECT: [illegible] Architects, [illegible] York [illegible]
CONTRACTOR: Huber Hunt Nichols, [illegible] NY
INSTALLER: Flower City [illegible], Syracuse, NY
MATERIALS: UNA-CORE 1" Aluminum Honeycomb core and .125" [illegible] plate [illegible], with a Bone White Hylar 5000™/Kynar 500® finish.

Custom Architectural Metal Systems

Upcoming Trade Shows

MRCA — October 17-19, Minneapolis, MN — Visit us at Booth #315

METALCON [illegible] — Visit us at Booth #713

FLEXIBILITY

We are able to meet your project design needs for **flat, bent, curved or compound shapes,** with **eight different UNA-CLAD panels systems.** Systems are available with exposed sealant or gasketed joint design. Panels are fabricated from **monolithic sheets or composite** with a thermoplastic or honeycomb core. Finishes include anodized and painted aluminum, polished stainless steel and polished muntz metal.

QUALITY

Every UNA-CLAD panel is **custom fabricated for a precision fit.** Computer Aided Design and Computer Aided Manufacturing assure close tolerance and efficient manufacturing of every system component. Close attention is given to **flatness, weather resistance and durablility** for every unit we produce.

RELIABILITY

Each facet of our business has been built in response to market needs for quality, cost effective products. Through our **panel systems, metal roofing systems, column covers and architectural flat sheet metal programs** we have continued to expand by innovation, design and state-of-the-art production methods.

SERVICE

Our professional representatives are located throughout the nation. They will provide you with an immediate link to obtain **design and detail assistance, budget studies and specification guidance.**

RELATED PRODUCTS

Our UNA-CLAD panel systems are complemented by our **column cover and metal roofing systems.** We are also a major source for **pre-finished and pre-polished architectural metal sheets.**

See us in Sweets:

Panels — 07420/COP
Roofing — 07610/COP
Columns — 05600/COP

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UNA-CLAD

1405 North Highway 169
Minneapolis, Minnesota 5544

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Local (612) 545-1604
Fax (612) 545-2762

Circle 52 on inquiry card



SKYSCRAPERS 28 1/2 X 46 1/2

SKYSCRAPERS

BY JOSEPH A. BARBETTA

THIRD IN THE ENR COLLECTORS SERIES OF CONSTRUCTION FINE ART PRINTS

This explosive new print is a dazzling exploration into the fantasies and realities of skyscrapers around the world, past and present. It joins, and perhaps exceeds, its predecessors in the ENR Collectors Series in both detail and imagery. One thing is certain, however, it is a tribute to our profession and a must for everyone who is in anyway involved with our dynamic industry. Colorful and imaginative, SKYSCRAPERS, along with BRIDGES and HIGHWAYS, will give you pleasure for years to come, for no matter how much you study them, you will always find something new. Each is multi-faceted and works on many levels, with its own special twists and surprises. Once you've seen them, you'll know why these prints are achieving classical status in the fields of construction, engineering and architecture. In addition to creating your own collection, they also serve as unique gifts - gifts that will be kept and displayed forever, a constant reminder of your thoughtfulness.

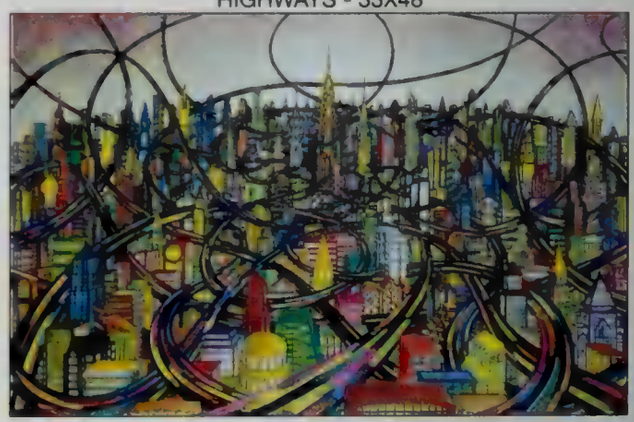
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RS • Granite • Marble • Limestone

Reinforced Stone (RS) is ultra-thin 5/16″ natural stone slabs reinforced with a steel mesh backing and epoxy bonded by a vacuum formed impregnation. This patented process transforms the thin stone into a strong, lightweight, non-brittle and impermeable exterior cladding material which is also suitable for other uses such as high traffic flooring and interior wall paneling.

RS Wall Cladding Systems

Factory-applied extruded aluminum frames and stiffeners with interlocking clips for quick and easy attachment to building structure provide structural integrity and allow safe use of large panel sizes—up to 5′ x 10′. Systems include traditional wet-seal closed joint system, open joint dry-set gasketed system, as well as an interior wall paneling system.

RS Advantages

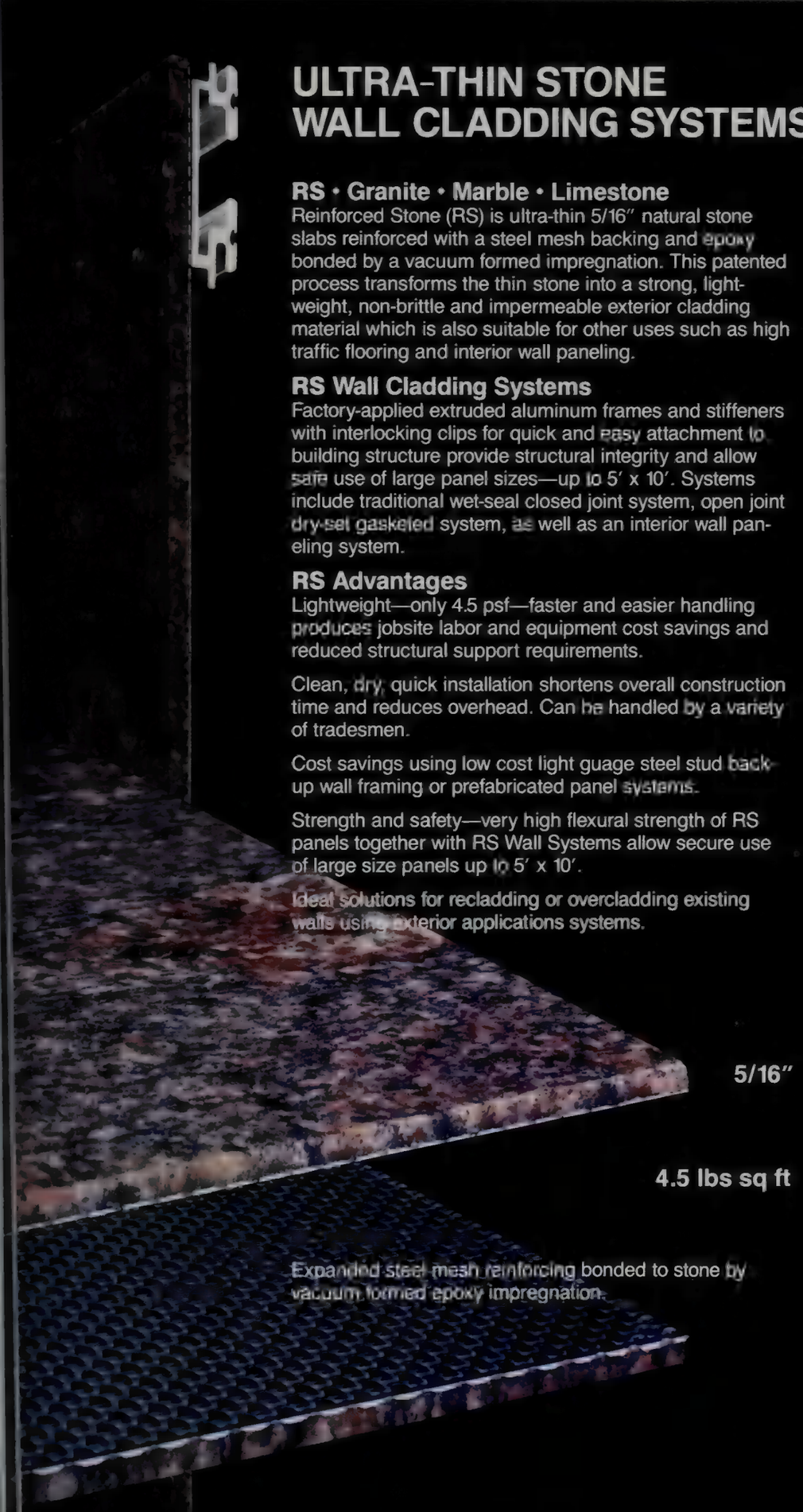
Lightweight—only 4.5 psf—faster and easier handling produces jobsite labor and equipment cost savings and reduced structural support requirements.

Clean, dry, quick installation shortens overall construction time and reduces overhead. Can be handled by a variety of tradesmen.

Cost savings using low cost light guage steel stud back-up wall framing or prefabricated panel systems.

Strength and safety—very high flexural strength of RS panels together with RS Wall Systems allow secure use of large size panels up to 5′ x 10′.

Ideal solutions for recladding or overcladding existing walls using exterior applications systems.





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Stops Fire, Smoke and Dangerous Gases!

FS-3003 "Soft Puff" INTUMESCENT material begins to activate at about 250° F to provide a gradually expanding seal that compartmentalizes a fire and blocks the penetration of smoke and dangerous gases. ZERO can provide INTUMESCENT material as strips in standard and custom sizes, or integrated into various head, jamb, and sill components of our advanced fire-rated, wood or metal door sealing systems.

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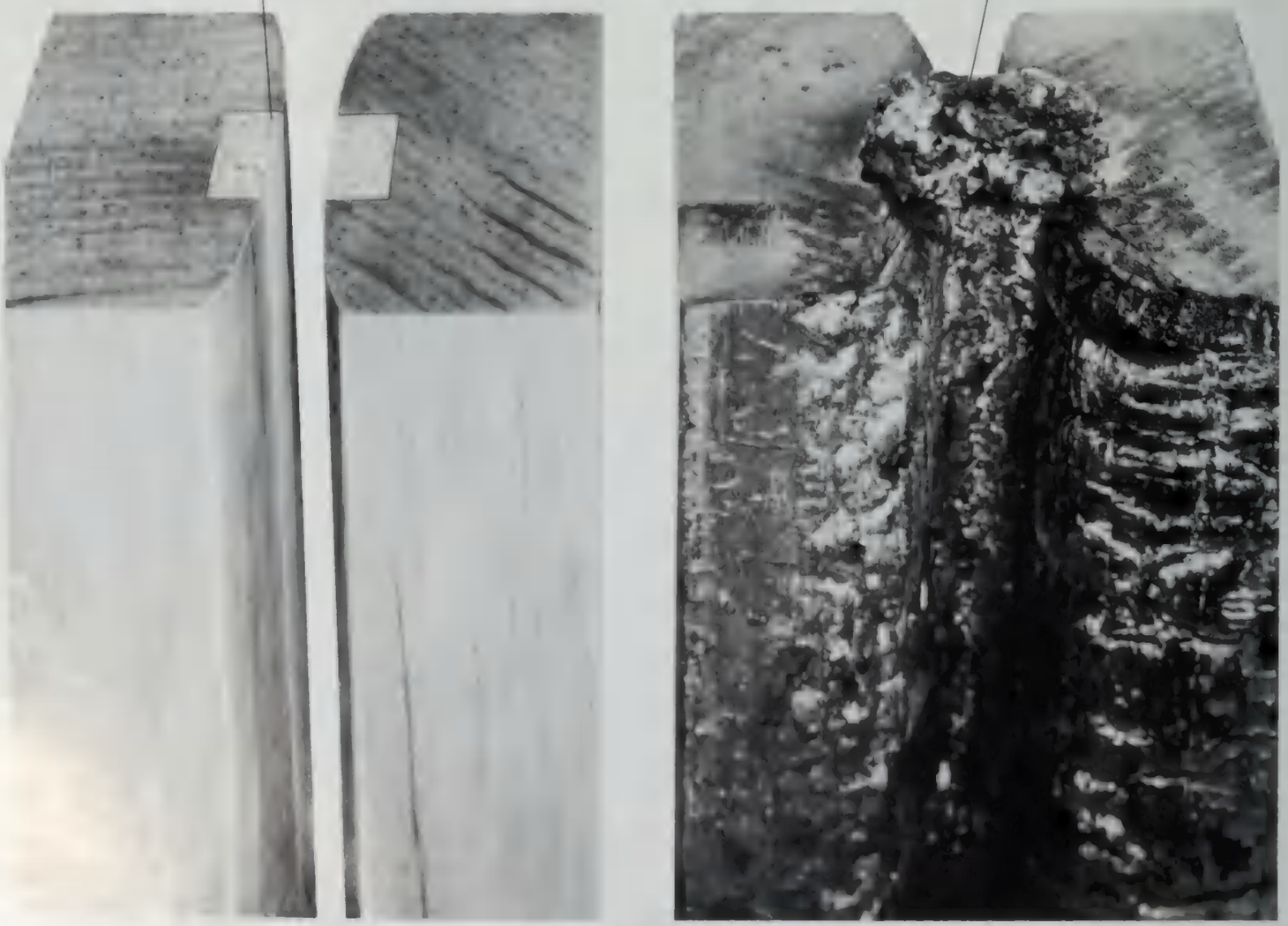
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WHEN NOTHING ELSE
IS GOOD ENOUGH
FOR LONG ENOUGH

This is
INTUMESCENT
material

Now it's
an INTUMESCENT
fire and smoke seal

In a few moments it becomes
a life saver!



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Product Literature Showcase

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White Office Systems

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Custom Metal Graphics



This new design concept by SURFACE DESIGN + TECH gives specifiers a wide range of creative options to produce high quality graphic images on metal. And what is even better, architects can now specify their own designs, logos, patterns, textures, etc... SURFACE DESIGN + TECH. will produce them to specs. More than 30 material + finish options can be used in limitless design combinations, including such exotics as gold-plating & coloring of metal. Call for information & samples: 1-800-537-1127 Fax: (305) 669-4064.

Surface Design + Tech.

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Architectural Interiors Wall & Corner Guard Systems



New Colorful 24-page catalog features full line of wall & corner guards, handrails, baseboard systems & door protection products to complement your most stringent design/color requirements & functionally reduce impact damage anywhere in heavy traffic environments: government buildings,office complexes, shopping malls, schools/colleges & healthcare facilities. Select from many styles in 40 NEW COLORS for contemporary design-coordinated projects.

Pawling Corporation

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EQUATOR Unvented Space Heaters



Rinnai's Equator models are designed to give ultimate comfort & utmost savings in small room applications. Ideal for conversions, additions or just to save on your regular heating bills with efficient zoned heating. All Equator models are A.G.A. designed certified. Operating cost are 3 to 4 times lower than electricity & 1 1/2 to 3 times lower than kerosene. We back our heaters with industry's best warranty because, size for size, we build the industry's best gas-fired heaters. For more information call: 706-884-6070.

Rinnai America

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Slate of the Art®



Supra-Slate II® is an environmentally-friendly fiber-cement slate - the only manufactured slate with an unpainted, "quarried slate" finish. It will provide "UL class A" security, freeze-thaw protection & maintenance freedom. Manufactured with beveled edges, it is available in Bangor Black, Pennsylvania Gray, Vermont Green, Rutland Red or, a new color, Granville Purple.

Supradur Manufacturing

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The Mark I Bending Brake



The Mark I brake by Van Mark Products Corp. is the most advanced portable bending & heating machine built. it is ideally suited for siding & window installations. It will bend all prefabricated shapes PLUSS many custome shapes. The Mark I is virtually Maintenance Free & uses a uniqu, self-adjusting cam-lok system. This ensures increased reliability over ordinary toggle-locking brakes. it is the most rugged & durable portable brake in the industry. Call toll-free 1-800-Van Mark.

Van Mark Products Corp.

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Revere Copper Shingles

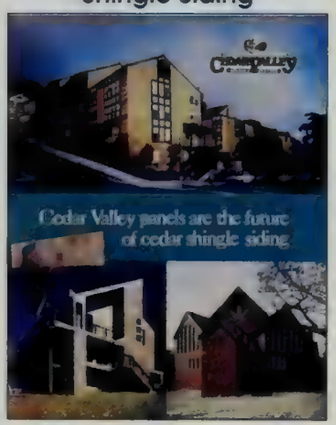


Revere Copper Shingles are quicker and easier to install than ordinary asphalt shingles. There are no special skills required & no special tolls. Because Revere shingles are manufactured from solid copper, not a foil laminate, they will likely last as long as the building they protect. To learn more about our copper shingles, or any of our other copper roofing products, call us toll-free at 800-448-1776.

Revere Copper Products

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The Future of Cedar Shingle Siding



Cedar Valley's new 8-page color brochure details the panelized exterior siding system. Included are specifications, product descriptions & illustrations, finishing & application information and nearly four pages of color photos of significant projects by leading architects throughout the U.S. who used conventional & Decorator shingle panels. Cedar Valley. Call: 800-521-9523. Fax: 408-636-9035.

Cedar Valley Shingle Systems

Circle 62 on Inquiry card

Product Literature Showcase

Roofing and Waterproofing Products



U.S. Intec introduces a new brochure detailing its complete modified bitumen product line. Both Brai (APP) and Brai/Flex (SBS) membranes are featured along with the accessory products that complete the total U.S. Intec roofing system. Of the six manufacturing locations nationwide, U.S. Intec manufactures modified bitumen in 4, with the other 2 facilities used to produce BUR under the Intec/Permaglas trade name.

U.S. Intec, Inc.

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Vinyl & Aluminum Lattice Panel Systems



Easily installed, durable system is ideal for porch, deck, balcony & utility enclosures, building facades, fences, arbors, trellises & a variety of exterior & interior applications. Variety of weights, patterns & finishes available. Installations can be shipped in pre-assembled sections thus reducing labor costs & waste. Cross Industries will custom fabricate to meet special design or code requirements. Send sketches/drawings for quotation to 3174 Marjan Dr., Atlanta, GA 30340. Call 800-521-9878. Fax 404-457-5125.

Cross Industries

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High-Wear Laminate Flooring System

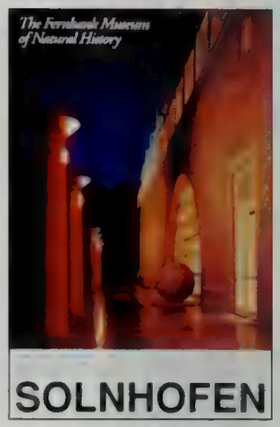


This innovative laminate-clad flooring system mfg. by Panel Specialists, Inc. creates the traditional beauty of natural flooring by using 21st century material technology. FLOOR D'COR is a floating floor system, tongue & grooved on all four sides in standard plank sizes of 11 1/2" x 48" & available in over 250 laminate colors & patterns. Natures look of elegance & charm is preserved while durability is enhanced to provide a floor that will offer a lifetime of service in the most demanding traffic areas. FLOOR D'COR is "made in the USA" & readily available so no project need suffer from the delays caused by scarcity of raw materials or the lead time of imported products.

Panel Specialist, Inc.

Circle 65 on Inquiry card

Solnhofen Introduces Fossil Brochure



Solnhofen Natural Stone, Inc. is pleased to announce the release of its New Fossil Brochure. This 8 1/2" x 11" four page full color brochure will guide you through the history of the intrinsic beauty of the Solnhofen® Limestones that often have been mistaken as "defects", which are instead exquisite examples of the wide variety of creatures representative of the Jurassic Period, when dinosaurs ruled the earth. The front cover shows Solnhofen's latest installation at the Fernbank Museum of Natural History in Atlanta designed by Graham Gund. This brochure, also available unfolded as a poster for showrooms, can be considered a twentieth century "Treasure Map" for the Jurassic Period.

Solnhofen Natural Stone, Inc

Circle 66 on Inquiry card

Acoustical Wall & Ceiling Panels

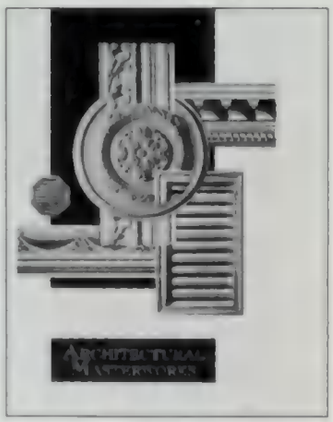


Conwed, the industry's acoustical expert for over 70 years, offers Respond, a custom acoustical products line. The innovative & coordinated array of acoustical products - wall & ceiling panels, baffles, ceiling clouds, absorbers and [illegible] can be combined to solve any noise problem, [illegible] in a music or [illegible] gymnasium, [illegible] multi-purpose [illegible] Need, 1205 [illegible] Ave., East [illegible] 4848, 800-[illegible] 554-4709.

[illegible] Graphaspe

[illegible] is an industry [illegible]

Architectural Masterworks



Architectural Masterworks moldings are historically correct period moldings made of high density polyurethane resin. These beautiful, heavily sculpted, highly detailed reproductions are incredibly durable, yet lightweight & easy to install. One piece construction & premitered corners also aid in the installation of our molding. These moldings offer a new way for builders & specifiers to add value & prestige to select homes. All of our products are in stock & we offer 10 day delivery. Also available: ceiling medallions, friezes, chair rails, & louvers.
Free catalog (800) 654-4953.

Architectural Masterworks

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Architectural Specification Binder



HMK, the world's leading manufacturer of specialty cleaning, protection, maintenance & refinishing products for all natural stone & marble announces it's Architectural Specification Binder. This new format has been developed to make HMK's written materials even more accessible. It should serve as an easy to follow manual to guide the reader through all the necessary steps with any given stone & marble installation.
Please contact us at: 415-647-3086 or 1-800-424-2HMK.

HMK

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Architecture In Glass



Amdega-Machin Conservatories' new architectural handbook is now available. The handbook sets out the general design principles of the two conservatory systems produced by Amdega. The Amdega line has established a reputation for making the finest traditional style conservatories since 1874. The Machin line is reminiscent of the graceful & romantic structures of previous centuries. Amdega-Machin Conservatories, P.O. Box 713, Glenview, IL 60025: (800)922-0110.

Amdega Conservatories

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Protect flooors & decks from water, vapor transmission & substrate cracks with Composeal Gold. Bonds direct to concrete, cementitious backer units, mortar beds or mortar fill over plywood. Thin-set your ceramic tile or natural stone on top. Listed by ceramic tile institute & UPC-IAPMO. Call Compotite Corp. For new catalog. 800-221-1056.

Compotite Corporation

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New lounge lamp is ideal for educational environment. Heavy-duty, tamper-resistant construction provides security and low-cost maintenance while handsome Brass'n Color® design compliments a variety of interiors. Plus you can Perma-Mount™ to any end table to prevent theft. Available in 7 design colors. UL and CSA listed. Free 30-day trial sample.

Adjustable Fixture Co.

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Pomeroy



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Pomeroy, 64 Sunnyside Avenue, Box 1377, Stamford, CT 06904.

Pomeroy

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Wheelchair Platform Lift



When stairs represent the barrier, the Garaventa Stair-Lift answers your client's needs, economically and in-style. With thousands installed worlwide, including the White House and Harvard, Stair Lift is the first choice of accessibility planners like you. Call today for your information package and get a free 40-page Design and Planning Guide: 800-663-6556.

Garaventa

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Marvin Windows' New Commercial Catalog

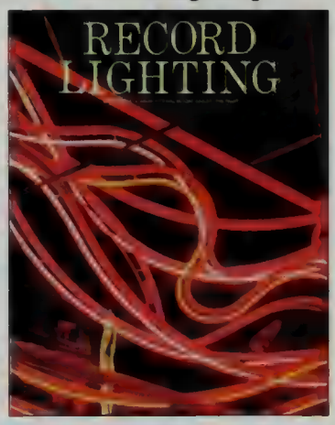


Marvin Windows' new commercial catalog describes the commercial capabilities of Marvin's entire line of wood and clad wood windows and doors. The catalog provides information on product styles, performance and design capabilities, as well as Marvin's Architectural Support Department and other non-residential service.

Marvin Windows

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Back Issues of Record Lighting

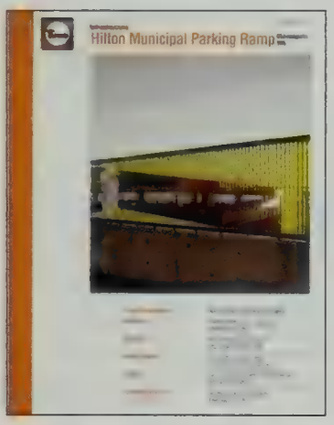


Add to your files by ordering back issues of RECORD LIGHTING, the exciting color supplement to Architectural Record. The price per issue is only $3.50 each (includes postage and handling). Send check or money order to Architectural Record, 1221 Avenue of the Americas, New York, NY 10020. Att: Back Issues.

Record Lighting

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Thorocoat® 200



Designed with safety and energy efficiency in mind, Thorocoat 200 adds improved light reflectivity to non traffic- bearing surfaces in dormitories, parking areas, gymnasiums, hallways, etc. A two-man crew can cover 20,000 feet a day with standard electric airless sprayer as easily as they would apply latex-based paint. Call 305-597-8100 or Fax 305-592-9760.

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The Ushio line of REFLEKTO low heat MR-16 style lamps offers designers increased flexibility for accent lighting without backward light spill & aesthetically pleasing design for open fixtures. The glass reflector has a decorative aluminum coating to accent any decor, & is available in matt black, clear, silver, white & gold. REFLEKTO lamps are 12 volt; 20, 35, or 60 watts & are available in 3 beam angles. For more product information, call 800-326-1960, Fax 800-776-3641.

Ushio America, Inc.

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Full-time Project Architect to provide client interface, programming, schematic design, building code/zoning review, design development, construction documents, specifications, review of contractors bids and construction administration. Must manage and supervise junior designers and draftsmen/women for each project execution. Prepare progress reports on each building project. Coordinate project execution and technical building systems with consultants. Utilize Auto-CAD system for project design and construction documentation. Provide preliminary cost estimation review for each project. Will work under the direction of principals and project manager. Must have a Master's degree in Architecture, must be a licensed architect in Georgia or eligible for reciprocity in Georgia, must have four years of experience as an architect or in architectural field.. Educational or work background must have included experience in recreational (public indoor and outdoor facilities) and housing (single and multifamily) architecture, Auto-CAD system, building code review, building design, and site planning. Salary $35,200 per year. If interested, send resume to: Georgia Department of Labor, Job order #GA5649585, 2636-14 Martin Luther King Jr. Drive, Atlanta, Georgia 30311 or to the nearest Georgia Job Service Center. An employer paid ad.

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incorporating energy conscious design elements, client utility specifications & real estate development values; prepare information regarding design, specifications, materials, equipment, estimated costs, & building time utilizing conceptual design methods & AutoCAD systems; report to architectural staff & clientele where necessary regarding progress of project development; prepare scale & full size drawings & contract documents for building contractors; review planning documents for urban sites; assist in delineation of designs & details; participate in projects ranging from renovation & rehabilitation of existing structures to comprehensive design, construction & interior development of new structures for commercial, office, retail, & industrial facilities & oversee work of architectural drafters & designers to ensure that project goals are met in timely & efficient manner. Must possess Master of Architecture in Architecture or Urban Design plus 6 months experience in job offered. College coursework must have included one course each in: urban design; structural systems in buildings; management and administration of design practice; and real estate finance and development. Required coursework or experience must have included conceptual design; urban planning; computer aided design; including use of AutoCAD system; project management; and resource administration. Applicants must further have gained experience in the renovation and rehabilitation of existing structures, as well as in the comprehensive design, construction and interior development of new structures for commercial, office, retail, and industrial facilities. 40 hrs., M/F, 9 am to 5 pm, $35,000/annum. Must have proof of legal authority to work permanently in the U.S. Send two copies of resume & copy of degree & transcripts to Illinois Department of Employment Security, 401 S. State St., 3 South, Chicago, IL 60605, Attn: Janet Aschenbrenner, Ref. No. V-IL-10644-A. No Calls. An Employer Paid Ad.

Project Architect, 40hrs/wk., 8:30 - 5:30pm, $31,678/year. Design/planning of long-span elevated rapid transit stations and maintenance shops with moving cranes for light-rail and rapid transit systems. Work with transportation personnel in evaluating project requirements. Coordinate building systems design with subconsultants. Coordinate contract document preparation. Cost estimation and construction administration. Master of Architecture as well as one year experience as a Project Architect or Architect required. Must have Illinois licensure. Previous experience must include: design of long-span elevated rapid transit stations and maintenance shops with moving cranes for light-rail and rapid transit systems; cost estimation; construction administration. Must have proof of legal authority to work permanently in the U.S. Send two copies of resume to: Illinois Department of Employment Security, 401 South State Street - 3 South, Chicago, IL 60605. Attention: Jean Woodson, Reference #V-IL-10634-W. No calls. An employer paid ad.

Senior Healthcare Architect/Principal. Highly experienced professional to lead all aspects of "new" healthcare division. Salary/bonus package open for individual capable of generating work and successfully executing projects. Henderson Group, 100 S. Brentwood, St. Louis, MO 63105.

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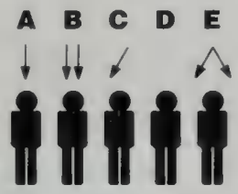
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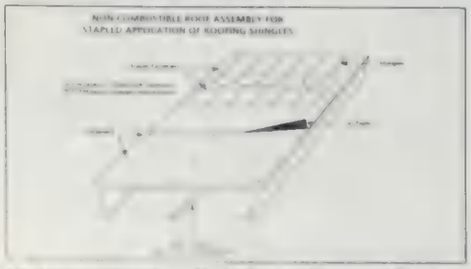
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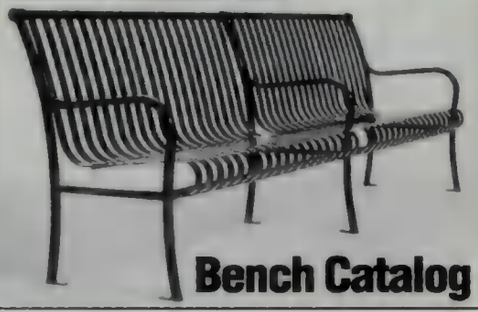
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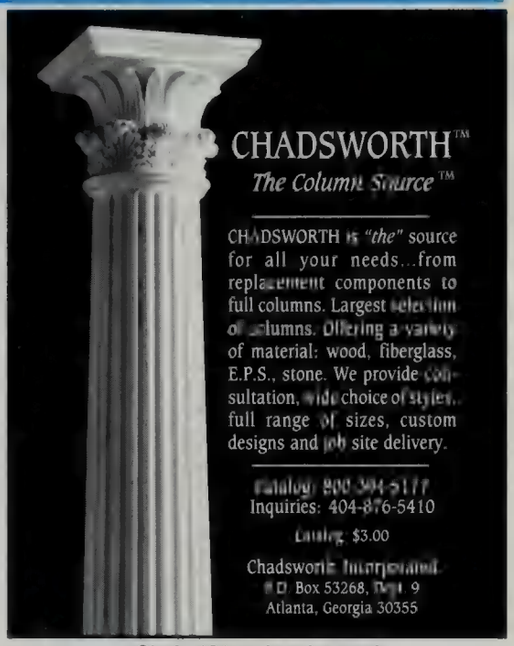
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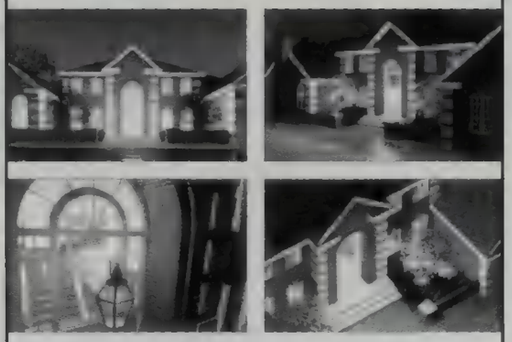
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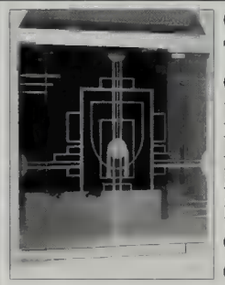
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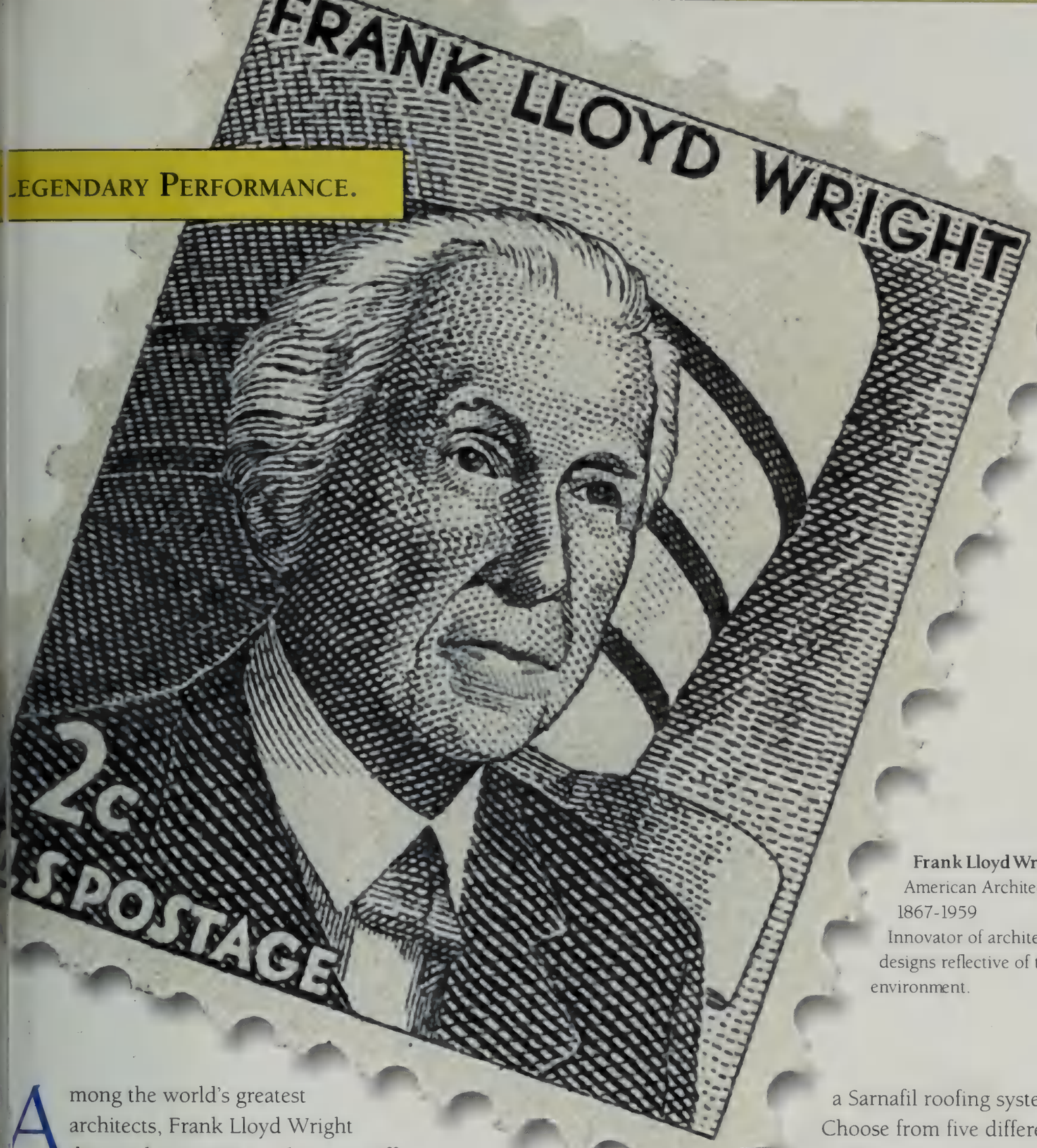
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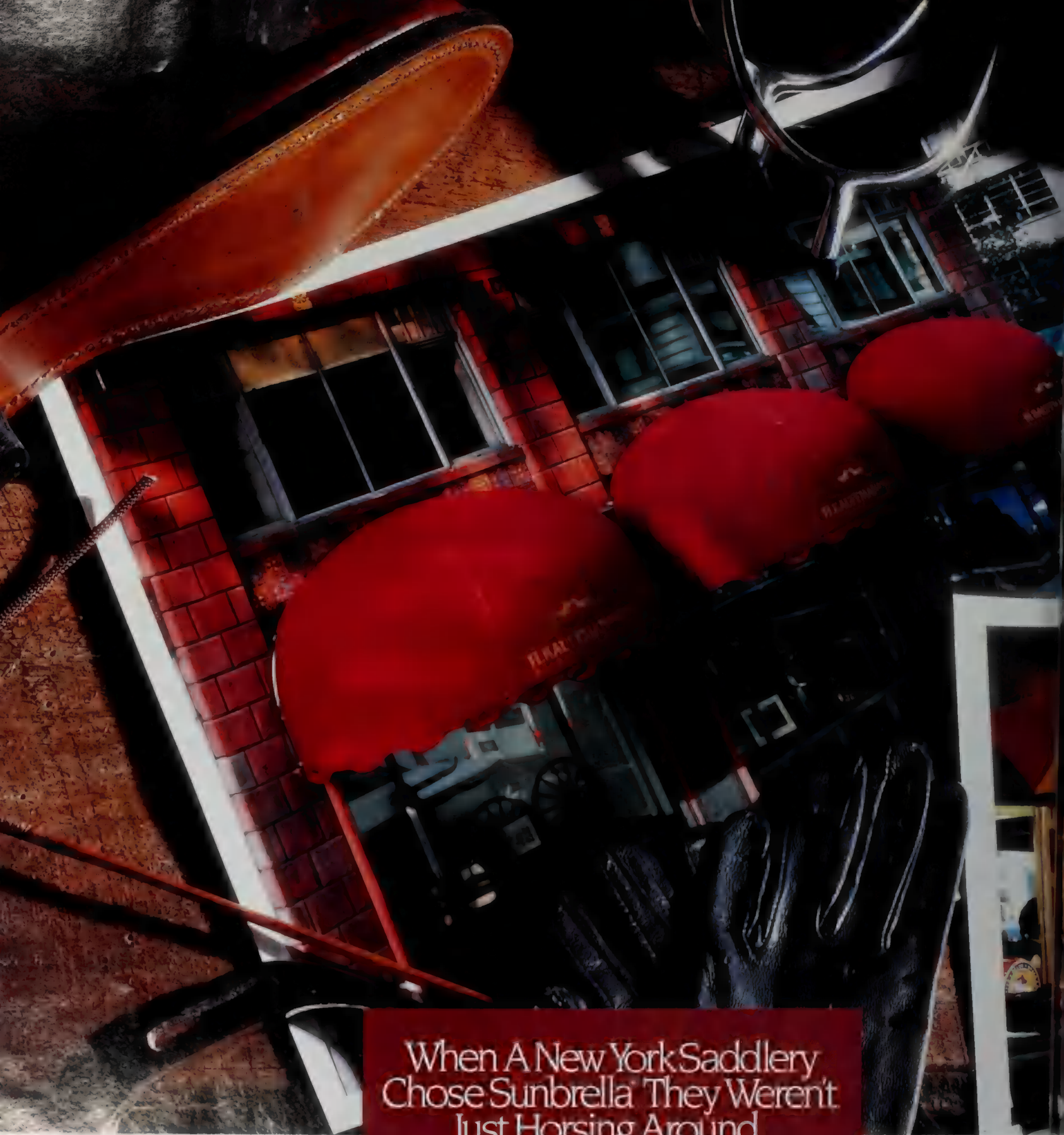
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The Bottom Line

The construction industry as a whole is changing at a profound pace. The concept of design-build has changed the equation to a point where architects are unable to comprehend the change. General contractors, developers, and project managers in the public and private sectors are almost prostituting the architects. GC's, who in the past relied on bidding jobs, are now in the forefront of selling the concept of bringing projects within cost and time parameters. Contractors are openly claiming that architect-designed projects are over budget.

Besides the onslaught from outside, there is an onslaught from within the profession. Recently a fellow professional remarked, "You architects are your worst enemies." I am a principal in a small firm. We have been in the business for the last eight years. For the last two years we have experienced extreme difficulties with professionals (architects and engineers) who are operating their businesses on a fly-by-night basis. They don't have insurance or an occupational license from the city, yet they're practicing architecture and engineering and signing and sealing architectural drawings. They can provide A/E services for fees as small as 1 percent since they have a minimum overhead. Meanwhile, small firms have to pay rent, staff salaries, insurance, licenses, etc. plus minimum wages to ourselves.

We are facing another challenge [illegible] who have a [illegible] with big firms [illegible] projects [illegible] firms can't [illegible] of this situation, and are reluctant to pay an architect even a minimum fee.

Who is the real spokesperson of the architectural profession? Does AIA and its chapters do enough to adjust to the winds of change or is it facing the change by burying its head in the sand? If today's architectural profession is to survive, it has to look beyond the glossy pictures produced by the big-name architects and start looking out for the interests of architects working in the trenches with no glory or rewards.

Radhe S. Mittal, AIA
Jacksonville, Florida

Liberating Device

I would like to congratulate Peter Slatin on his article "Beyond Wheelchairs" [RECORD, August 1993, page 38]. It presented a balanced assessment of ADA.

My only suggestion to the author and others involves the reference to "wheelchair-bound users." Our language can present as much of a barrier to our view of disabled persons as some of our buildings. Why not simply say "wheelchair users" or "persons in wheelchairs"?

John Lee, Architect
Assistant Director, Division of Planning & Design
Kentucky Department of Parks
Frankfort, Kentucky

Correction

Am I nuts, or is the detail drawing of the stair printed upside down [RECORD, September, 1993, page 94]? It certainly makes more sense when the page is inverted, but then the photos get all screwy.

Graham C. Hunter, II
Perkinsville, Vermont

Touché!—Ed.

November 12-13
"Building With Value '93" focuses on resource-efficient and "green" construction; Seattle. Call 206/842-8995.

November 17
BSA Unbuilt Architecture awards announcement and exhibit at Build Boston. Call 617/951-1433, ext. 221.

November 16-February 12
"Paul Rudolph: Explorations in Modern Architecture, 1976-1993" exhibition, National Institute for Architectural Education, New York City. Call 212/924-7000.

November 28-December 3
Interbuild '93, Birmingham, England. Call 301/656-2942.

To January 2
"Expressionist Utopias: Paradise, Metropolis, Architectural Fantasy" exhibit, Los Angeles Museum of Art, includes a Coop-Himmelblau installation. Call 213/857-6522.

To January 8
"Thomas Jefferson and the Design of Monticello" exhibit, The Gallery, New York City. Call 212/554-4352.

Competitions

- Learn Television is awarding $1,500 for the best "virtual building" that will be the graphic centerpiece of an interactive magazine. Deadline: December 10. Call 312/275-5444.
- Corporation for Olympic Development and the Architecture Society of Atlanta offer three cash prizes ($2,600, $1,200, $850) in a competition to create public spaces to coincide with the Summer 1996 Olympics. Winners will be invited to negotiate with CODA for design commissions. Entry deadline: December 3; submissions deadline, March 1, 1994. Call 404/723-7210.
- Sub-Zero will award $10,000 to the best kitchen design that uses any of its seven full-size units. Deadline: December 31. Call 414/227-3500.

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Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

Executive, Editorial, Circulation and Advertising Offices: 1221 Avenue of the Americas, New York, NY 10020.

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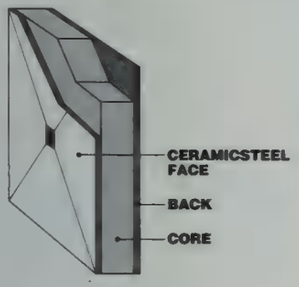
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College of Health Sciences Building

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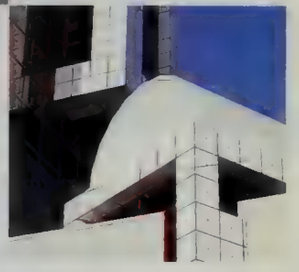




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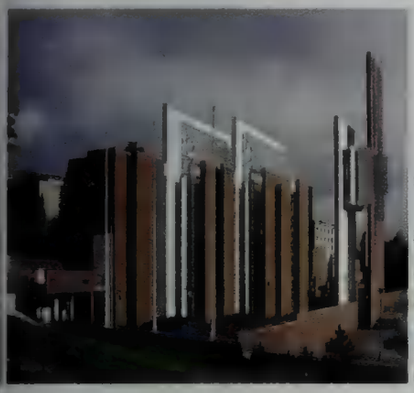
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Circle 4 on inquiry card.



Arno De La Chapelle

Juha Leiviskä's Männistö Church and Parish Center in Kuopio, Finland, is fully within the tradition of Finnish Modernism, integrating concern for nature and the man-made environment, use of daylight, and simple materials. Page 86.

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1994 Product Reports
RECORD's annual reports on new building products and product literature. Contains over 600 entries (many of which are available in electronic as well as printed form). Manufacturers' information is arranged within the 16-division CSI/Sweet's format.
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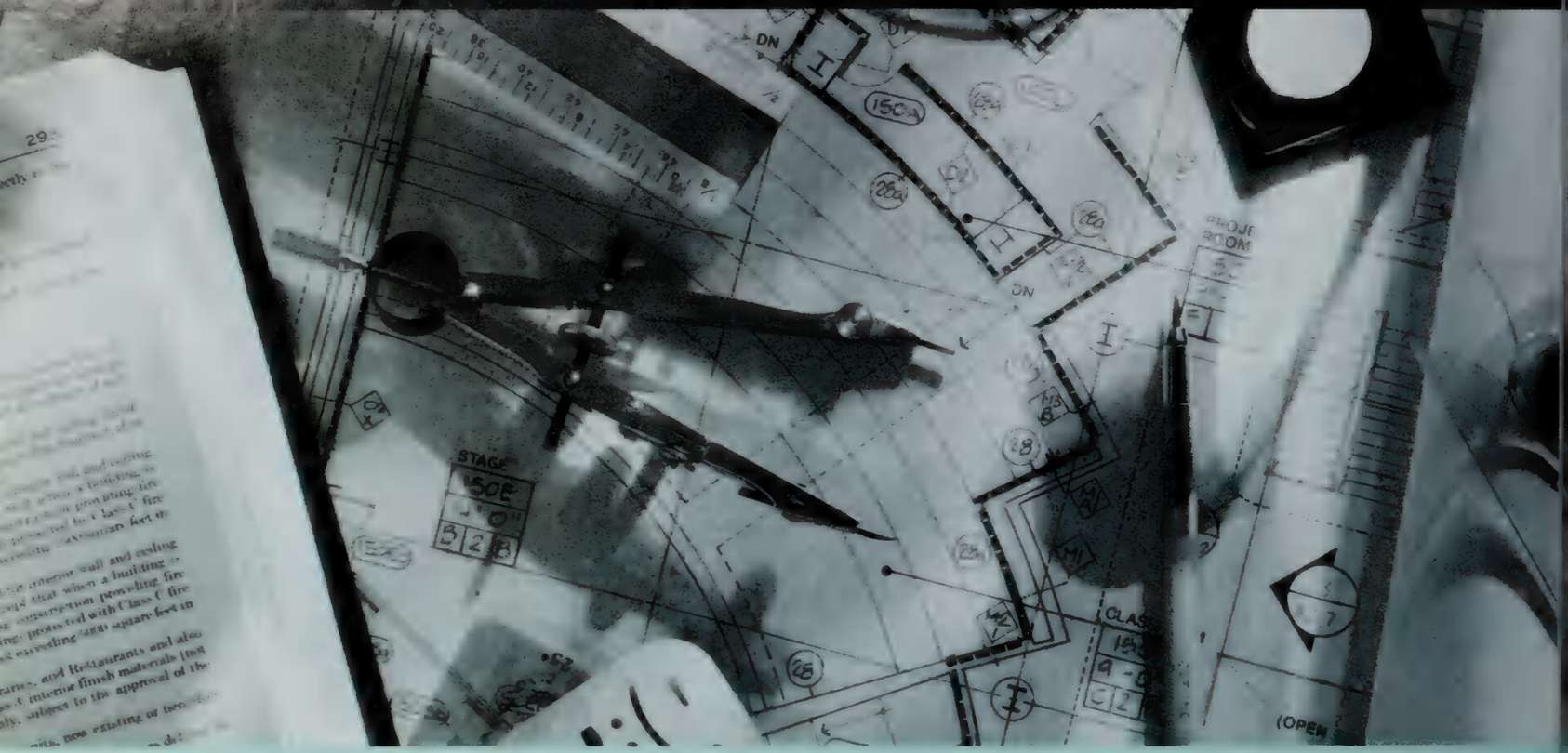
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The New College, University of Virginia, Charlottesville, Virginia
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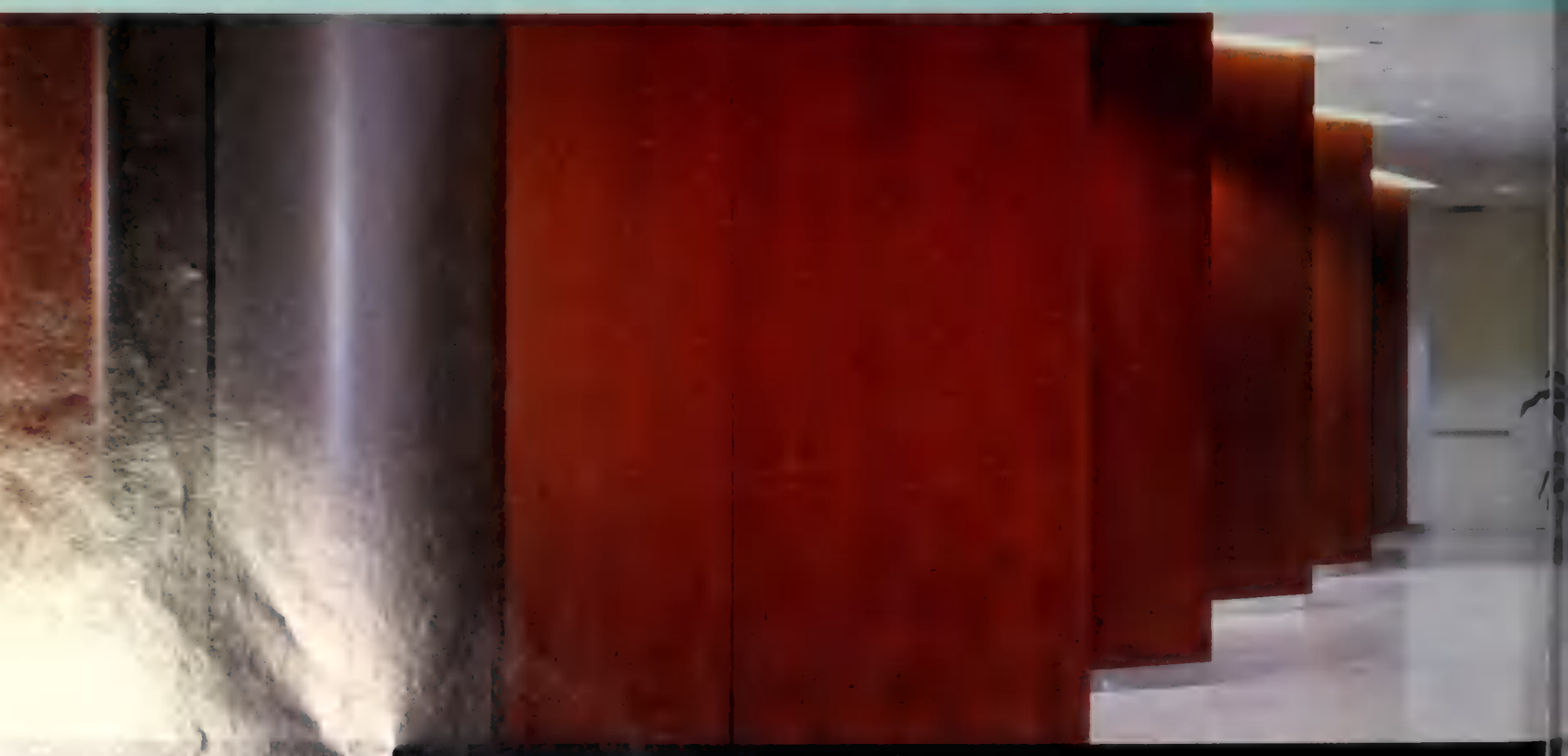
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This month's special feature, titled The New Client (page 25), takes up one of the great events in the modern architect's business life — the coming of age of the client as a full-fledged, tightly organized, hard-nosed partner in the architect-client relationship. The special feature, reflecting uncensored responses from dozens of clients and architects contacted by a team of editors and contributors, not only uncovers the facts but also gives practical counsel on ways to turn to advantage what most architects still see as an uncomfortable hurdle.

In the past, some clients with active, ongoing building programs did indeed establish their own facilities departments. Today, even owners doing few or more modest projects interact strongly with the architect, from selection to occupancy. That's due in part to the recession, now mercifully fading, with owners in a strong buyer's market able (and often eager) to make architects, with depleted backlogs and high overheads, jump through hoops before making their choice.

Much more to the point, and certain to outlast the recession, is the downsized client. This client has discovered that with the help of state-of-the-art manufacturing technology, smart facilities inventory procedures, the ability of some employees such as salespeople to get by with sharing a two-shift office or even to function without one, and the ability of electronics literally to do the work of several individuals, many types of clients can prosper with fewer facilities.

In other words, more and more clients are discovering that facilities are an important part of their bottom line. H. Bruce Russell, head of Kodak's real estate department, was quoted recently in a *New York Times* article as having pushed through a plan based on finding out not *how much* space each employee used but *how* the space was used. He ended up reducing Kodak's space occupancy costs by 25 percent (meantime his own department rose from two employees to 200.)

As the climate toughens, certain principles have emerged to guide the architect in dealing with clients — past, present and future:

Remember that making money for the client (or alternatively, reducing expenses) is a prime goal. For prosperous architects — from Emery Roth to Robert Stern to Michael Graves, from Morris Lapidus to HOK — the road to financial success has always been the ability to meld their client's business or institutional success into the design equation. According to a recent AIA-sponsored Roper Organization poll, clients said that when selecting architects for projects, they were looking for professionals who "listen and respond well to their needs and goals and who are able to manage the complex maze of regulations, political approvals, and zoning requirements." These criteria ranked top among the 15 tested.

Learn to speak the client's language. Most of the time this means simply sticking with plain English. At other times, understanding the technical language of health planning, education, or real estate is important. But at all costs eschew obfuscation.

Clients too have a duty when dealing with architects. It is neither fair nor sensible when selecting architects to request so much in advance by way of travel, presentations, and services that the winner's fee is scarcely enough to pay for the marketing. The selection process has seen some serious abuse, and it's neither necessary nor wise.
Stephen A. Kliment

THIS BANK SELECTED US BECAUSE WE PAID HIGHE



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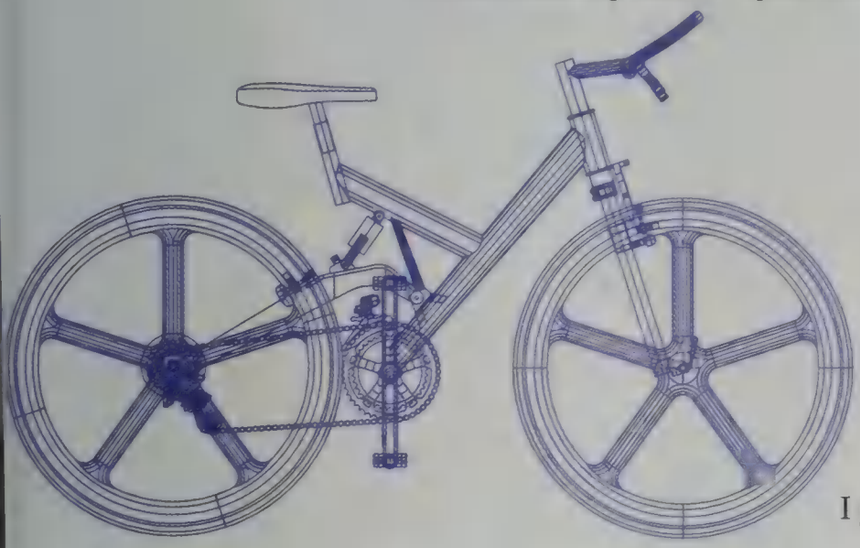


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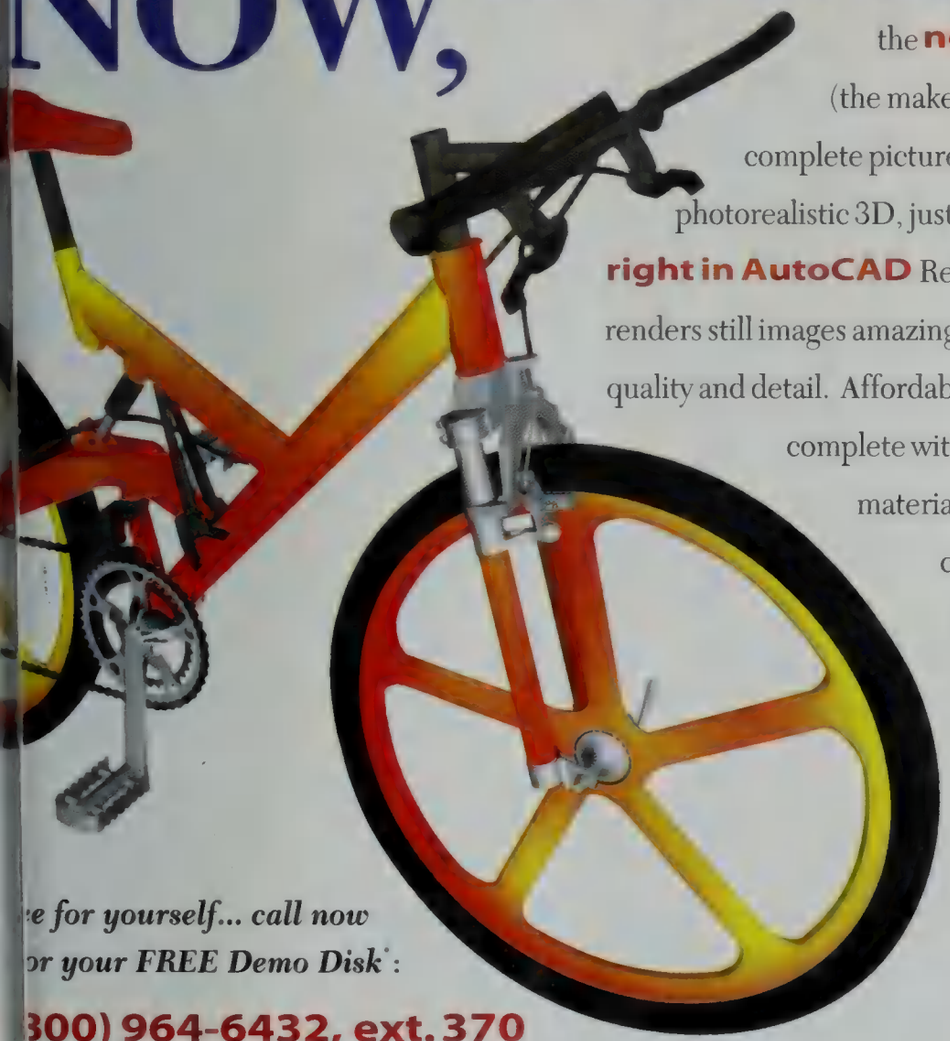




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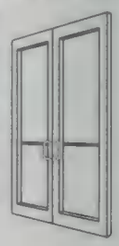
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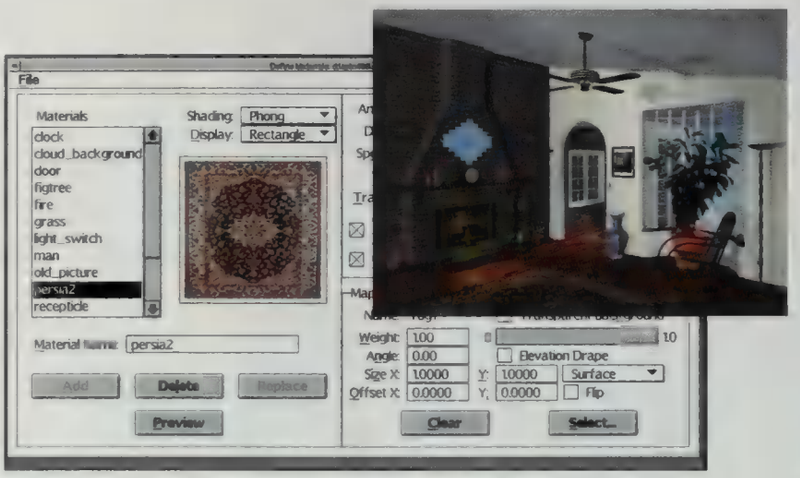
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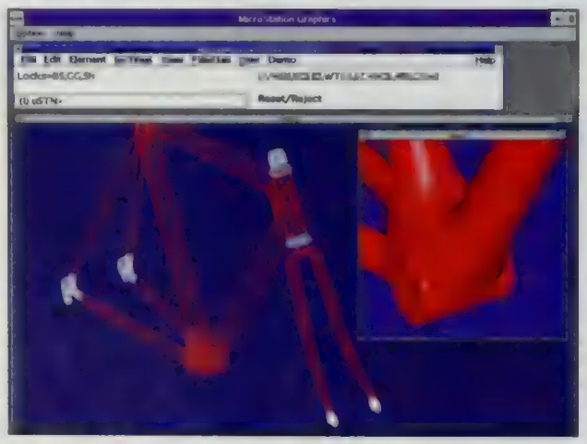


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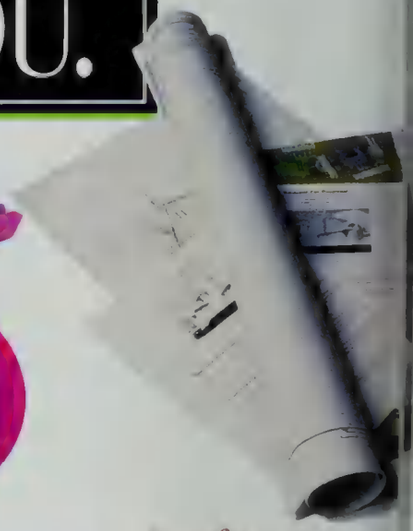
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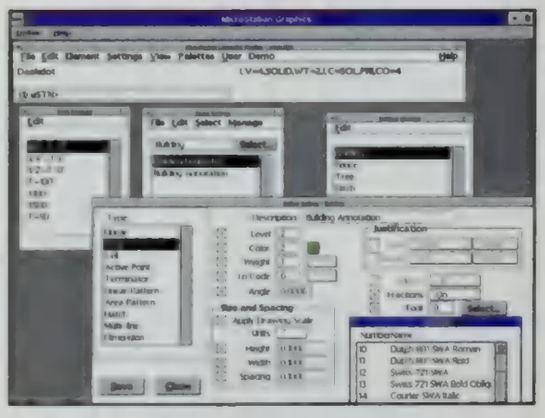
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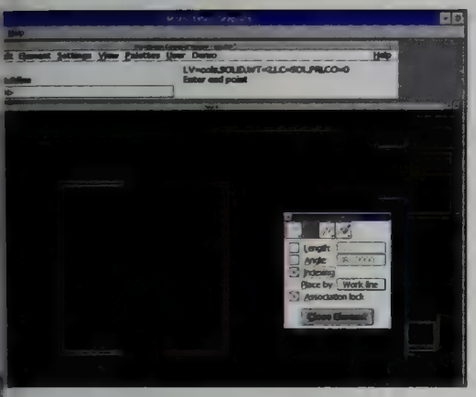
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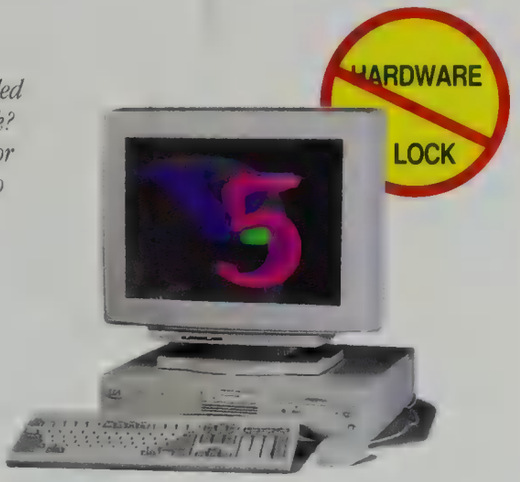


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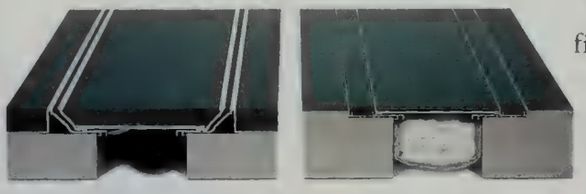
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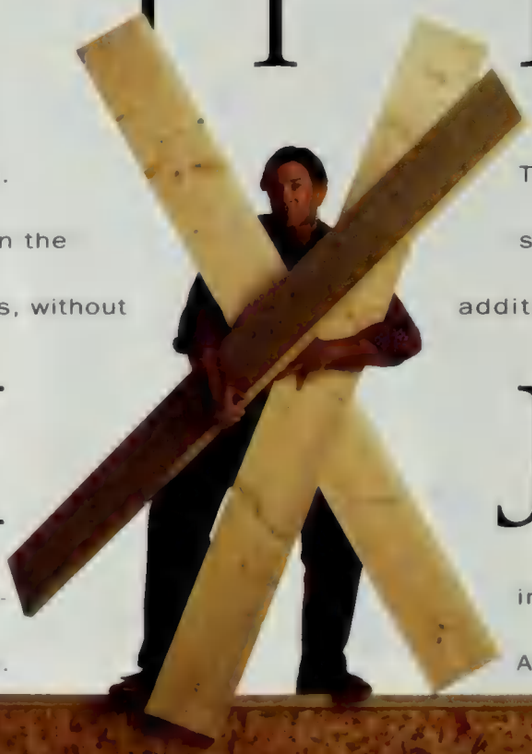
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The Client as Tough Customer

Caught unprepared, many architects have trouble dealing with clients who have stepped up the complexity of hiring, who interfere more during the course of the project, and who engage construction and other consultants often criticized for placing cost and schedule above design values. The phenomenon is reinforced by the recession and by corporate downsizing made possible by more efficient production and causing changing needs for facilities. The recession is fading; but the client's new way of doing business is, on the contrary, on the rise and will intensify well into the next century.

This month's special RECORD section, The New Client, tackles the topic from six angles.

- **Selecting the architect.** Nancy Levinson talked to dozens of architects and uncovered a wide range of procedures, many exploitative of the architect, some supportive.

- **Fees and agreements.** There are dozens of ways to sign an agreement and negotiate fees. Lynn Nesmith uncovers some ingenious approaches architects have worked out with their clients against the tough new backdrop of practicing architecture.

- **Managing the project.** The new climate is marked by deeper client intervention during the design and construction phases of the project. Ways in which architects can turn this to advantage are shown in Judith Davidsen's article.

- **Design-build.** Charles Hoyt describes a rising trend and shows how architects are dealing with its benefits and limitations.

- **Staffing the department.** A who's who by Joseph Wilkinson of architects working on corporate and governmental facilities staffs.

- **Profiles**. Jim Russell describes two emerging types of client organization. *S. A. K.*

Marathon of Frustration

Getting the job has become an exercise in frustration for many architects as they try to land private and public projects.

By Nancy Levinson

Observing that competition is tough is about as revealing as remarking that the sky is blue. Indeed, when asked the first rule of architectural practice, H. H. Richardson is said to have advised, "Getting the first job!" Asked the second, he quickly replied, "Getting the next job!" A century later, the great architect's counsel goes straight to the heart of today's practice concerns.

To explore this topic, RECORD spoke recently with several dozen architects and a good number of clients. Collectively, their comments suggest that getting the job has never been more arduous, and that private and public selection processes have become marathons of time, cost, and frustration.

Broad changes

Two broad and largely unrelated phenomena help explain current difficulties, according to those interviewed. First, competition for work remains intense for firms both small and large, emerging and world-famous. RECORD's readers know this, of course. Still, a trend the profession has long bemoaned is apparently on the upswing: competition for work not only from other architects but from former consultants and collaborators, e.g., engineers, contractors, and developers forced by the construction slump to offer new services. "I interviewed recently for a retrofit of a local building," says Chicago architect James DeStefano of DeStefano & Partners. "My chief competition was a construction manager I used to work with."

Second, selection processes have become more toilsome because of the changing nature of businesses, institutions, and public agencies. Almost all of the architects interviewed by RECORD describe their dealings with both existing and potential client organizations as far more complex than in the past.

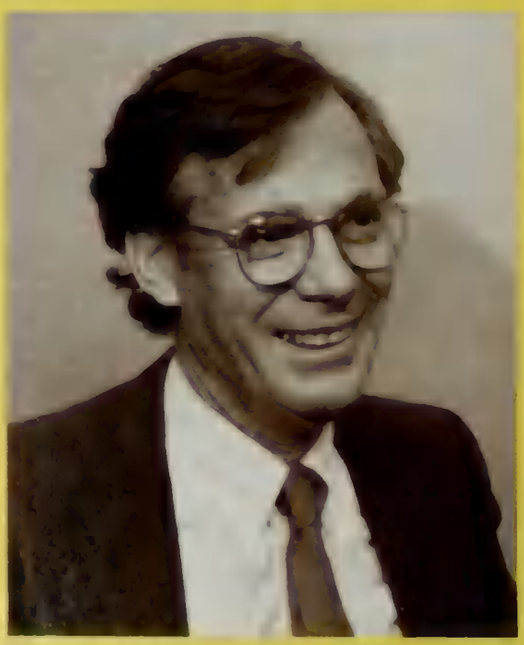
Certainly the old days of getting commissions [illegible] cronies and fellow [illegible] are long gone; but even [illegible] architects' close associ[illegible]fs and university [illegible] on the wane. Some [illegible] with non-profit [illegible] the new complex-

ity to society's strong recent emphasis on the empowerment of diverse groups. While granting the obvious merits of this, they point out that this tendency has made the client a mutable, and, in the words of Kevin Roche, of Kevin Roche John Dinkeloo and Associates, a "hydra-headed" entity. Many more doors now open onto the corridors of power, and, as a result, says Boston architect Thomas Payette, of Payette Associates, "there is such a density to organizations today, a density of management, committees, and meetings." In some cases, Payette notes, this "density" extends beyond the actual client. "I remember a selection where one of the voting members of the committee was a representative of a citizens group," he says. "On the one hand, it's great to have the input. But the sheer complexity of interests can be daunting."

Architects report a similar new intricacy in their corporate and business clients, given the volatility of today's workplace, selection personnel keep changing, as do processes, so that architects find their Rolodexes need frequent updating. As Jim Allen, a principal of Perkins & Will in Chicago, says, "Even with existing, satisfied clients, you've often got to compete for jobs. It's as if you're starting fresh with each project."

Architects describe their relations with business clients as complicated also by the current shift away from autocratic management styles toward the creation of more levels of responsibility. Today design firms are less likely to be picked by top-level executives than by committees of middle managers, or, in some cases, by independent consultants. Dallas architect Duncan Fulton, of Good Fulton & Farrell, calls this last trend "one of the biggest changes." In the Southwest, he notes, several real-estate brokers have expanded services to include selection of designers. "We've seen the rise of a whole new kind of consultant," says Fulton. "Although some are very skillful, the process itself is more confusing, less personal. Typically we're not in direct contact with the client. We're buffered by intermediaries."

A client's perspective on changing selection styles comes from William Gregory, the director of facilities of Kennametal Inc., a manufacturer of metal-cutting systems in Latrobe, Pa. "There's no doubt the involvement of senior management [in the selection of architects] has lessened. The pace of work is now so fast. They don't have the time." Gregory, who sees the growth of his own field of facility management as evidence of this, sees some architects as perplexed by the new diffusion of responsibility. "They don't seem sure who their client is, exactly. Architects who've interviewed with us sometimes send letters to our president—who then simply passes them on to me."



"On the one hand, it's great to have input, but the sheer complexity of interests can be daunting."

Thomas Payette, Payette Associates

Some highlights:
- **Short lists lengthen.** *More entrants, with fatter documents, vie for less.*
- **Unexpected rivalry.** *Architects compete with converted collaborators.*
- **Buffered by intermediaries.** *Clients are separated from their architects.*
- **Service or commodity?** *Some prefer their architecture by the square foot.*



"Providing free services is unprofessional and unprofitable, and, in the end, the client respects neither the service nor the professional who provides it."

Kevin Roche, Kevin Roche John Dinkeloo and Associates

Architect and consultant Bill Lacy, who oversaw the J. Paul Getty Trust's selection of Richard Meier as architect of its new center, recalls being summoned afterward by William Paley, the late head of CBS, to discuss choosing a designer for a museum of broadcasting. Paley asked how long the Getty process had taken. "About 18 months," Lacy replied. To which Paley responded, "Well, we'd like our architect by Friday." Today, of course, such despotic behavior is rare; so too are the kinds of streamlined selections implied by Paley's impatient remark. Whether managed by internal committees or outside consultants, today's processes are typically more comprehensive and rationalized than previous methods.

Assessing capabilities

"Much more analytical than in years past," for instance, is how Maury Keiser, head of the building management branch of the Navy Federal Credit Union in Vienna, Va. describes his firm's approach. "It's important to go beyond the warm and fuzzy feeling of 'they seem to be a good group.' Today we're looking very closely at capabilities."

"Looking closely at capabilities" is, of course, the essence of the matter. For architects, however, it can translate into selection gauntlets likely to include:

- *Shortlists that belie the name.* While a final field, years ago, usually contained two or three firms, today's might include six or more. Phil Mein, a principal of Corgan Associates of Dallas, suggests that such bloated lists can be deceptively encouraging. "We noticed we were being considered for more projects, so we assumed things were picking up," he says. "But there isn't really more architectural work—there's more proposal-writing and interviewing, as more of us are caught up in the selection stage."
- *RFQs and RFPs that require voluminous responses.* Several architects contacted by RECORD noted that today's qualification submittals and project proposals may outweigh the Manhattan phone book. Clients typically demand copious information about previous jobs (e.g., cost per square foot, number of change orders, etc.), about liability and litigation, and about project workplans. "Clients will often ask us to explain in detail how we'll handle the job," says Malcolm Holzman, of Hardy Holzman Pfeiffer Associates. "Years ago it was usually assumed you knew how to do a project."
- *Interview rooms crowded with potential project staff.* Architects' out-of-pocket time and travel expenses are up, as many clients insist on meeting not only principals but entire project teams. "We look very carefully at all the people involved," says Evie Asken, university architect of Western Michigan University, who recently oversaw the selection of Holabird & Root to design a new science building. "We want to know not only if the firm has relevant experience, but if the project architect does, too."
- *Increasingly conservative selection criteria.* Businesses and government agencies have become more cautious, tending to favor firms with substantial experience. This isn't surprising, given the continuing ricketiness of the economy. But today architects detect a similar prudence among the school and institutional clients who used to commission adventurous architecture. "We've noticed increasingly risk-aversive behavior in a client



"We lost a project to a firm that visited the site and prepared impressive drawings. The client told us the other architects were 'already doing the project.'"

Cathy Simon, Simon Martin-Vegue Winkelstein Moris, Architect

Most competitions are not deliberatively exploitative. (An exception was the new Texas Rangers ballpark; 27 big-league firms competed in what was dubbed "Rangergate.")

community that used to be enthralled by architecture and very open to new faces and imaginative ideas," says Boston architect Frank McGuire, a principal with Perry Dean Rogers & Partners. "But even in this community we're seeing selections based very narrowly on quantity of experience. A firm might win a dormitory if they've done 15 and the competition has done 10. But they might lose to a firm that's done 20."

Competitions, official and otherwise

Competitions are another selection exercise about which few architects are neutral. Most of those interviewed were troubled less by open competitions—generally viewed as opportunities for clients to attract a range of ideas and for young firms to show their stuff—than by limited, invited competitions. The theoretical argument that such competitions produce unusable projects conceived in a creative vacuum is well understood.

Today, however, there are more practical objections. Most competitions are not deliberatively exploitative. (A notorious exception was the 1991 competitition for a new Texas Rangers ballpark, in which 27 big-league firms vied in what was, essentially, a publicity stunt; *Texas Architect* dubbed the debacle "Rangergate.") But even well-intentioned and well-organized competitions require architects to produce work for only nominal payment. Stipends, ranging usually from $10,000 to $50,000, rarely cover more than a fraction of actual costs.

Thus, losing a competition can be, says frequent competitor Robert Stern, of Robert A. M. Stern Architects, "financially punishing." Indeed, the reward for winning is sometimes little more than the satisfaction of doing so. "You can cut dramatically into the fee, simply to win," says another oft-invited contender, Eugene Kohn, of Kohn Pedersen Fox. "You can spend so much time [that] you actually make very little on the project. For that reason, we [illegible] very carefully."

[illegible] the official compe[illegible] known and where [illegible] entrant"—is the [illegible] traditional proposal-and-interview selections to escalate into full-dress competitions. These days a client's request to "hash out some ideas" can spur firms to prepare detailed plans, rendered perspectives, and breathtaking models. Most architects deplore these de facto competitions. "Shame on the architect who provides free work!" admonishes Robert Stern. "And shame on the client who accepts it." Shame or not, "the practice is prevalent," says Jim Allen. "Even when not requested, upfront designs have become common at presentations today."

To be sure, savvy clients often look askance at such labors. When interviewing for a student center at Bowdoin College—a project ultimately awarded to Hardy Holzman Pfeiffer—Boston architect Graham Gund brought a model to the meeting. Today he admits that doing so hurt his chances of getting the job. "We considered it only a conceptual model, but the client told us we'd gone too far without their input." Bowdoin's reaction, however, is unusual. An experience described by San Francisco architect Cathy Simon, of Simon Martin-Vegue Winkelstein Moris, illustrates a more typical response to preselection designs. "We lost a project to a firm that visited the site several times and prepared some impressive drawings," she says. "The client told us they felt that the other architects were 'already doing the project.' "

Because they vary by region, it's hard to generalize about public processes. Nonetheless, many firms report that government selections, too, have become more cumbersome. Public agencies now often require the same detailed information, and they seem just as susceptible to the eyewash of upfront work. Of special concern, however, are some recent General Services Administration competitions for design-build work.

For example, for the 11 firms that submitted "best and final" designs for an IRS Computing Center in Detroit (Lohan Associates' winning design is now under construction), the 14-month competition was grueling. James DeStefano, one of the competitors, estimates that each architect-developer team spent more than $500,000 vying for the 800,000-sq-ft, $100-million job; he estimates also that the ordeal will affect the profitability of his 30-person office for about two years: "Because we have to take a design to 30 percent completion, architects bear the brunt of the costs in these competitions."

GSA concedes the flaws of the process—whose byproduct, after all, was several-million-dollars worth of unused design. "Federal guidelines don't give us much flexibility to modify the process," says Nanette Myers, GSA's contracting officer for the Detroit job. "But we're aware it's not efficient, and that it's very tough for architects." While acknowledging the necessity of careful selection, many architects question the ultimate value of some of these methods. Some speculate that committees and consultants devise precedures whose purpose is not only to choose architects but to demonstrate their own good-trooper thoroughness.

What bothers practitioners?

Architects are frustrated by today's selection processes—by the lengthening shortlist and the expanding checklist—for various reasons. They are frustrated because, after all the show-and-tell, many choices seem determined by those perennial criteria—price proposals and personal chemistry. They fret also because, as Perkins & Will's Allen says, "often the selections themselves could have been predicted. Offices are spending a lot of money and time to demonstrate qualifications which really should be evident beforehand." St. Louis architect Eugene Mackey, of Mackey Mitchell Associates, recalls an incident that highlights the new exaggerated emphasis on accountability. "A longstanding client asked us to do a project," he says. "But then, midway through the job, they asked for qualification material. They wanted it in the files, in case the board asked about the selection."

And finally, architects are unhappy because the lengthy, complicated processes pose for firms a double bind: offices are spending more to pursue work which, given the competition, they have less chance to win. This unhappy scenario can endanger a firm's profitability and ultimately its survival.

Some architects see in the situation more deep-seated troubles. They view the willingness to pursue work under any conditions

and at great cost as sad evidence of a collective loss of professional self-respect. "We're our own worst enemy" was a phrase we heard often, as architects described the elaborate hoops through which even the most eminent firms must leap to win work, and the routine willingness to provide services before being hired to do so. "The profession is in trouble, and [providing free services] is a very serious issue," says Kevin Roche. "It's unprofessional and unprofitable, and, in the end, the client respects neither the service nor the professional who provides it."

Federal antitrust laws prohibit organizations such as the AIA from taking actions—e.g., setting fees or drafting guidelines on the advisability of free services—that might appear to restrain free trade. As Eugene Kohn suggests, however, the laws are not the point. "I wish that architects would value their ideas. I wish each of us would realize that we've got to stop giving away our work, or charging fees so low that it's almost the same thing," he says. Kohn compares architecture with other professions, noting, for instance, that lawyers don't routinely write briefs for prospective clients, just to prove their talent.

Several architects sense in current selection methods another measure of declining professional stature. "Today architecture is seen less as a service than as a commodity," says Robert Hillier, of The Hillier Group in Princeton, N. J. "Clients now want to see exactly what they're getting, as if hiring a designer were like buying a car. No wonder we have all the free sketching and fee-bidding." Duncan Fulton, who has noted the same trend, believes it accounts for a related penchant to see architects as more or less the same. "We're seen as indistinguishable from each other," he says. "It's as if what we provide is a commodity made up of uniform samples, like wheat. And just as wheat is bought by the bushel, there's the sense that architecture can be bought by the quantity. Too many clients seem to want architecture by the square foot." ■

Signs of hope

Amidst the difficulties, architects have spotted hopeful trends in selection processes, including:

▪ *Efforts by enlightened clients to streamline selection and competition processes.* For the renovation of the Getty Trust's museum in Malibu, consultant Bill Lacy has organized a two-week sketch competition, similar to the traditional Beaux Arts esquisse, requiring architects to produce only conceptual drawings. "It's a hybrid process," says Lacy. "It's a way for the client to see examples of design thinking, without putting architects through a full competition." Malcolm Holzman, one of the competitors, calls the process "much healthier" than the typical competition, adding "It's got the advantages [of a competition] without its artificiality."

Similarly, when Clemson University was choosing a firm for a five-year, multi-building renovation project, its facilities department used a process that topped out with a one-day charrette. "Because of the project's size, we wanted to see some specific ideas," says Mark Wright, Clemson's associate vice president of facilities. "But we couldn't pay much, so we tried to make it as painless as possible." "Quite civilized," is how unsuccessful candidate Kirk Craig, of Craig, Gaulden & Davis in Greenville, S. C., describes Clemson's charrette. "Our losses were limited because we didn't have the pressure to produce beautiful boards."

A far more compact approach, from the architect's viewpoint, is that devised by the San Francisco International Airport for its mammoth $2.4-billion expansion (actually 43 separate projects). According to architect and consultant Jason Yuen, the Airport asked the 617 qualifying firms to provide client lists going back three years; the selection panel then developed a list of 80 architects for the 43 jobs based solely on interviews with previous clients. For the Airport, the process was exhausting: the panel conducted more than 3,000 interviews. But for A/E firms it was relatively simple, and Yuan believes it corrects flaws in more traditional processes. "With proposals or presentations, the basis of selection can all too easily become salesmanship," he says. "But I'm not looking for fancy talkers or good proposal writers. I'm looking for red-blooded architects who can get the job done."

▪ *The growing presence of architects on client selection teams.* Although the in-house architect is sometimes viewed as a rival, many private practitioners see the advantages of fellow professionals in government and industry. "Quite often they're our allies," says Phil Mein. "In some cases, they've helped our marketing efforts, and lobbied for good design."

• *Reforms in the federal procurement process.* GSA has just begun to reform its selection process (for traditionally delivered, not design/build, projects). Based on a GSA-sponsored Design Initiatives Conference, held this spring and attended by several well-known architects, the new guidelines pare the process in its early stages. Instead of requiring initial submittals from teams, the agency will now judge only those of the architect of record; thus firms will be spared the time and expense of making alliances with consultants and other architects.

And, in a qualitative reform, the new process requires that architectural excellence be a prime criterion for selection. The advertisement in the July 29, 1993 *Commerce Business Daily* for the new federal courthouse in Omaha, the first project announced under the new rules, does indeed reflect this new emphasis. "The design should be an expression of the American architectural tradition . . .," it says. "The objective of the selection process is to select an excellent designer . . . who will produce a building that exemplifies design excellence." ■

Wary—But Not as Scared

Recession prompts fee-cutting, but enlightened clients accept fee-setting alternatives.

By Lynn Nesmith

The current downward spiral of architectural fees, compounded by increased competition and the pressures of a flat marketplace, is getting scary. "Architects are desperate," says San Francisco architect John Field. "Survival through cut fees reduces a profession to a cutthroat business."

Architects in small and large practices around the country are calling for a fairer fee structure, lamenting that as a group they are prohibited from establishing a uniform system for setting fees. In 1972, following a federal antitrust lawsuit, the U. S. Department of Justice forbade the AIA from promulgating any ethical standards, rules, or policy statements for its members that prohibit competitive bidding, and struck down recommended fee schedules. Today, without the leverage of a collective body or industry standards, architectural fees vary significantly from firm to firm.

Myriad routes to a fair fee

The first step to get an accurate fee is to gather correct information. The pressure to provide a quick answer often causes an architect to fail to ask the right questions, establish the project's requirements, and tap the experience and knowledge of the owner's team, which may include an architect or other design professional.

"Our fee structure is not based as much on client or building type, but on the amount of information available and the clarity of the project," says Thomas Eichbaum, of Florance Eichbaum Esocoff King Architects in Washington, D. C. "The most accurate way to set a fee is to develop a schedule and actually staff the project. We then check our calculations against a percentage of the construction budget. In addition, we look at historical data to compare similar projects by building type to determine that the job should take X-number of [illegible] times X-number of [illegible] per sheet."

[illegible] dollar figure per square foot. That was the basis for the Federal Judiciary Building in Washington, D. C., a design-build competition project developed by Boston Properties for the federal government."

"Most of our clients ask for fixed fees, with reimbursables," says Robert Ludden, of Hansen Lind Meyer Associates of Orlando, Fla. "Clients are much more receptive to paying the reimbursables as they go, because they perceive this approach as a way to monitor that aspect of the cost."

Some architects prefer an hourly rate for preliminary phases and a lump sum for design development and construction documentation. Says Herbert Noyes, principal of Noyes Vogt Architects, a 15-person firm based in Guilford, Conn.: "Much of our firm's work is renovation, which requires a great deal of initial field investigation. Most of our institutional clients understand that pre-design is important and, if done properly, can save money during the construction phase." For institutional and university work, a New York City architect researches the highest fee the client has ever paid for a specific building type. If he can match the complexity, he hopes the client can "match or better" the previous fee.

Architects who specialize in residential work find many clients open to a system based upon a combination of hourly and fixed fees. New York City architect Dennis Wedlick uses an hourly rate during preliminary design and design development to maximize flexibility, and then sets a cost per square foot for CD. "If a client comes to me with very strong ideas, then the schematic and DD phase can go very quickly." But if three sites or programs are being considered, Wedlick and his client can spend more time working on those ideas. Overall, he maintains "that the fee is not dictated by a margin of profit, but rather a figure that enables you to get the job. My fees are based on what I can provide, and I try to modify my services in terms of the amount of drawings that I produce, to allow me to work within the fees my clients can afford."

Clear communication is critical in all negotiations between owner and architect. "Our firm pushes hard for client education at the onset of a project to make sure that everyone understands what is going to be done, what the scope is, and what the fee really represents," says Robert Ludden. "Our first preference is our HLM contract; next is the standard AIA contract; and third is the client's custom contract." That said, Ludden finds that more clients write their own agreements.

Also citing more owner-developed contracts, Chicago architect Daniel Wheeler says his firm's residential work filters through word-of-mouth so negotiations are fairly simple. "We usually use the AIA B141, with a page and a half of amendments. But as we do more institutional work, negotiations are much more strenuous, and our clients tend to have their own contracts." An architect who specializes in residential work selects contracts according to the parties involved. Without an attorney present, a simplified version of AIA documents is used. With an attorney, he uses the AIA standard.

Delineating the scope of services

To be sure, universally accepted standardized documents outlining the specific scope of services would clarify what quoted fees mean. AIA's frequently used "B141 Owner-Architect Agreement" and "A201 General Conditions" describe services in general terms, whereas the "B161 Designated Services Agreement" and "B162 Scope of Designated Services" are more comprehensive. In order to define and more precisely delineate the scope of architects' services and compensation, AIA recently issued "B163, Standard Form of Agreement Between Owner and Architect with Descriptions of Designated Services and Terms and Conditions." It replaces B161 and B162.

Practitioners have long sought a succinct means to negotiate payment. But, says Chicago architect Steven F. Weiss, chair of the AIA Documents Committee, they have faced a dilemma—the client's perception. "While some clients don't know these services are available, others erroneously assume they are part of the bargain, requiring no further payment or consideration."

The B163 document is intended to resolve such concerns with a fee negotiation that

Some highlights:
- **A cutthroat business?** *The effort to survive has led to rash cuts in fees.*
- **What clients look for.** *Many are said to ask for fixed fees, with reimbursables.*
- **GSA comes alive.** *Once dreary, government jobs now look appealing, especially since the GSA may soon lose its monopoly status.*

more accurately represents services to be provided, says Will Zachmann of the AIA. The B163 document provides the basic tenets of understanding between owner and architect, with a two-page matrix listing 83 proposed services. Each service is described, and a compensation worksheet is provided to estimate how much work will be required.

Public vs. private

As commercial development came to a near standstill during the last four years, firms that once thought federal government projects were a lot of work for marginal profit began seeking General Services Administration contracts. Says a Washington, D. C., architect: "It was always clear. You get 6 percent, and the only variable is what kind of extra services will be tacked onto the standard fee." Competition for GSA projects has intensified in recent years, and the amount of work has remained strong, relatively unaffected by the economy.

And GSA's traditional predictability might be changing, too. A proposal in the Clinton Administration's plan for "reinventing government" could institute an immediate federal freeze on building, buying, or leasing government office space. The 168-page report, released in September, says a moratorium could be implemented by executive order. Proposing a similar freeze, Sen. Byron L. Dorgan (D-N. D.) has charged that GSA buildings cost double or triple a private developer's fee. His legislation would allow those buildings now funded or under construction to proceed, but prohibit any additional money to build or to lease federal buildings in the next two fiscal years.

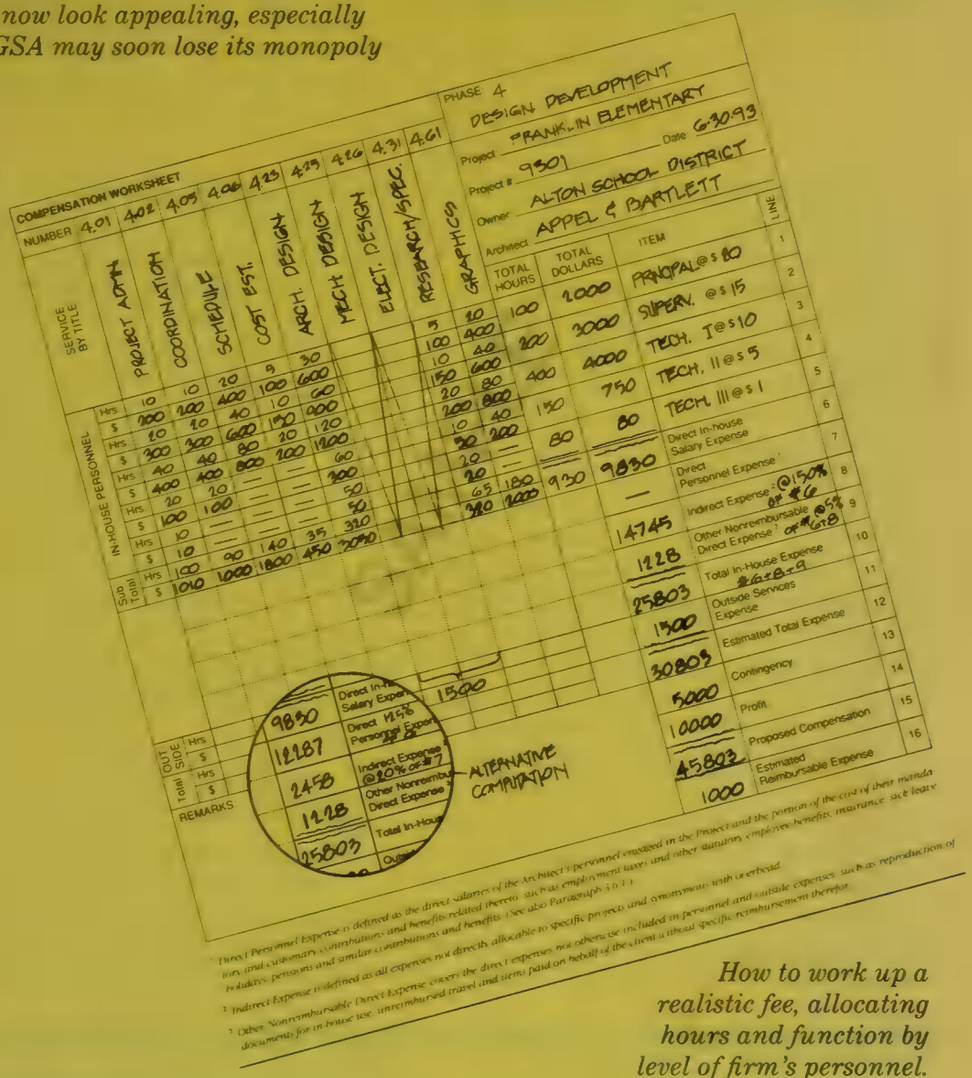
The Clinton report also calls for breaking GSA's monopoly on building and leasing office space, so federal agencies could contract for real-estate services independently. "These proposals would hurt an already weak construction industry," predicts Robert Burke, vice president of Boston Properties. "But, over the long haul, they would provide opportunities for the private sector to use entrepreneurial techniques to manage government building projects—offering potential benefits for everyone."

As architects leave traditional employment in private practice, more and more are turning up as clients. A recent AIA survey found that 18 percent of licensed member architects currently hold positions in corporate, government, and academic settings—up 2 percent from five years ago. "As a rule, architects working on the other side of the table understand the problems," says Robert Ludden. "The architect/client is also better able to communicate the problem to his colleagues."

Another potential advantage of a more sophisticated client is that the architect can negotiate a more sophisticated fee. "We have one enlightened client, who is actively taking a role in understanding the anatomy of our fee structure," says Thomas Eichbaum. "That level of communication is a great advantage and ultimately transfers into better design." But other practitioners find a downside to more architects on the client team. "They know the questions to ask, and they are not willing to delete the brochure rationale we got away with for a long time. The questions are now much more demanding," says a Chicago architect.

Setting appropriate and profitable fees is a complex issue which reflects as much on the core values of the firm as do savvy business or accounting procedures. Principals may want to ask: What services does our firm provide? Which are required for a specific project and how do we precisely document them? How do we provide these services? And, most importantly, how can we create a value for which we will be fairly paid?

Having answered these questions, a firm is better positioned to determine the best approach to fee-setting—lump sum, time and materials with or without an upset, percentage of overall construction costs, multiple of labor, cost-based accounting, or some combination. Los Angeles architect Marv Taff offers a basic tip: "You must conduct business in a manner that is not suicidal. Don't agree to anything that is just plain dumb." ■


COMPENSATION WORKSHEET

PHASE 4 DESIGN DEVELOPMENT
Project FRANKLIN ELEMENTARY
Project # 9301 Date 6-30-93
Owner ALTON SCHOOL DISTRICT
Architect APPEL & BARTLETT

NUMBER 4.01 4.02 4.03 4.04 4.25 4.29 4.26 4.31 4.61

SERVICE BY TITLE: PROJECT ADMIN. | COORDINATION | SCHEDULE | COST EST. | ARCH. DESIGN | MECH. DESIGN | ELECT. DESIGN | RESEARCH/SPEC. | GRAPHICS

IN-HOUSE PERSONNEL — Hrs / $ rows

LINE	ITEM	TOTAL DOLLARS	TOTAL HOURS
1	PRINCIPAL @ $80	1000	100
2	SUPERV. @ $15	3000	200
3	TECH. I @ $10	4000	400
4	TECH. II @ $5	750	150
5	TECH. III @ $1	80	80
6	Direct In-house Salary Expense	9830	
7	Direct Personnel Expense		
8	Indirect Expense @ 150%	14745	
9	Other Nonreimbursable Direct Expense @ 6%	1228	
10	Total In-House Expense	25803	
11	Outside Services Expense	1500	
12	Estimated Total Expense	30803	
13	Contingency	5000	
14	Profit	10000	
15	Proposed Compensation	45803	
16	Estimated Reimbursable Expense	1000	

ALTERNATIVE COMPENSATION: 9830 Direct In-House Salary Expense; 12287 Direct Personnel Expense @ 125%; 2458 Indirect Expense @ 20% of #7; 1228 Other Nonreimbursable Direct Expense @ 10% of #7; 25803 Total In-House Expense; 1500 Outside Services Expense; 15500

REMARKS

Direct Personnel Expense is defined as the direct salaries of the Architect's personnel engaged on the Project and the portion of the cost of their mandatory and customary contributions and benefits related thereto, such as employment taxes and other statutory employee benefits, insurance, sick leave, holidays, pensions and similar contributions and benefits. (See also Paragraph 3.6.7.)

Indirect Expense is defined as all expenses not directly allocable to specific projects and synonymous with overhead.

Other Nonreimbursable Direct Expense covers the direct expenses not otherwise included in personnel and outside expenses, such as reproduction of documents for in-house use, unreimbursed travel and items paid on behalf of the client without specific reimbursement therefor.

How to work up a realistic fee, allocating hours and function by level of firm's personnel.

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Leaner and Meaner

Clients for the most part have reduced their facilities staffs but expanded their authority, which they have been increasingly willing to use.

By Judith Davidsen

Over the past decade, some old clients have taken on a leaner, meaner mood; many are novices who have never built anything; others are veterans building in new ways that require them to unlearn and relearn as the process develops.

Typically, meetings with clients have become frequent and long—with fewer participants but more decision-making authority present in the conference room. CAD has gained in presentations, along with budgeting and scheduling software. Designers increasingly push for early decisions; some have begun to reassess favorably the roles of construction- and project-managers, and some are doing more tracking to make sure their invoices are paid within an acceptable number of days.

For the interpretive museums that comprise about half of the work at Lee H. Skolnick Architecture + Design Partnership, a heavy schedule of meetings and consultations from conceptual development through design has been a way of life for at least the past five years. Skolnick says some clients' learning curve is still so steep that boards of private museums keep coming back with reports that "I just saw this, I just heard that, somebody told me to watch out for the other," and there are still contractor-members who claim museums can be built for the same price as pre-fab metal warehouses. Government museums, he adds, now come with "many more sets of design standards from many more authorities, some conflicting. The strictest win." Skolnick notes an increase in phased government bidding, where, he says, "The architect doesn't get a chance to follow through." The firm still relies on manually generated drawings and models.

The Voinovich Group began in the 1980s to carve a niche in the court-ordered upgrading of county jails for clients who had not built in 100 years, and has always taken the initiative for scope and budget updates by means of regular client contacts. Electoral politics can throw the firm a curve. Edwin Williams, vice president, Voinovich Companies, recalls a jail that was ready for construction documents when a new commissioner was elected on a NIMBY platform that moved the project 45 miles away to another county with another architect; Voinovich wound up renovating the old jail at less than 15 percent of the original cost. "They had to pay us through design development and then to start programming all over again," he reports.

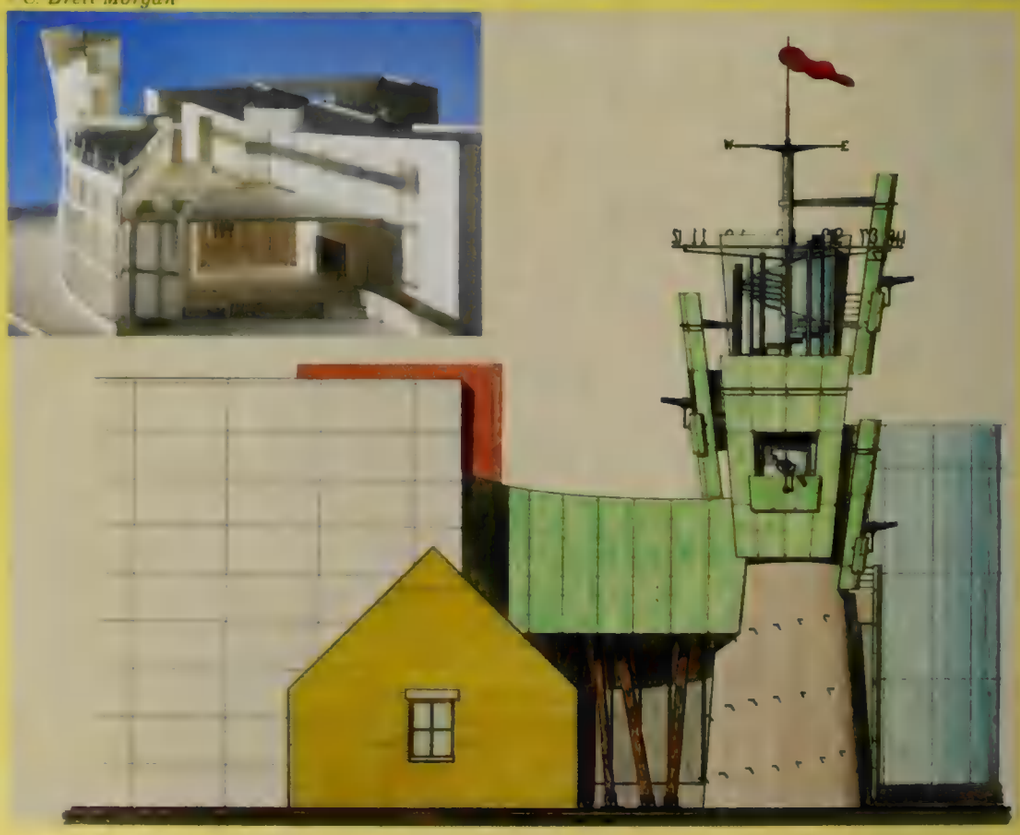
Saving questions for meetings

To handle the multitude of unknowns in the emerging field of "green" design, William McDonough schedules regular biweekly meetings or teleconferences, weekly during intense early and late phases. "It allows people to store questions," he claims, "and avoids frantic phone calls and the miscellania that float in and out." A typical meeting includes four people from his office, and an interior planner, construction manager, project manager, financial analyst and, most important, a chairman or CEO from the owner side. "Our instructions come from

Brookline Street Housing
Cambridge, Massachusetts
Client: Homeowners Rehab, Inc.
Design: Goody, Clancy & Associates

Public and private funding-source responses to the economy have buffeted these low/moderate/market-rate units at every stage. The community development corporation client sublet a parcel from a developer who, from schematics on, tried to triple density on a project where the city required private outdoor spaces and entrances. Then the state mandated air conditioning for the [illegible] and finish changes to increase livability of the market-rate [illegible]. Weak [illegible] owner financing [illegible] 140 units on hold [illegible] fall for the sche[illegible]

© C. Brett Morgan



Some Highlights

- **Construction Managers.** *Well-versed CMs, brought into the process early, can help keep a project on time and on budget, but many CMs still exert a disruptive influence.*
- **Dealing Directly.** *Meetings are longer and more frequent but smaller, now that client downsizing has eliminated layers of hierarchy to let architects interact with decision-makers.*

the top," he explains. "Clients are asked to examine the whole process because of all the new wrinkles. They have to be comfortable and precisely informed, because it's their decision."

Attendance at Studio E meetings has decreased as client and consultant downsizing over the past two years eliminated middle-management posts, leaving the architects to deal directly with owners and executive directors. "We used to meet with the people who answered to them," principal Brad Burke reports. "It was pretty much hit-or-miss because the reps didn't have authority. Now, direction gets hammered out in schematic design, and at that point we're pretty well assured of approval. It's going to be interesting when everybody gets busy again and we find ourselves dealing with people who have to track answers back through three or four other people." On the other hand, many large clients delegate to their professional design staffs key decisions that once were made by top management, according to Hershel Post, vice president, retail design and development at Chemical Bank.

Knowing more and knowing it sooner

Alice Carey, president of Carey & Co., agrees that client downsizing, while causing temporary disruption, makes for quicker decisions. She feels tight budgets cause more client decision-making in schematics: "They understand they have to know early where the money is going or they are going to have to backtrack."

She sees more detailed programs, more in writing, "more making sure people sign off on them," and uses more CAD now that scanning can use existing drawings and photogrammetry can create elevations from a two-point photo.

Teamwork breaks down

While most architects claim they keep the other disciplines and consultants under their control, Carey perceives a breakdown in teamwork as private clients increasingly hire special disciplines in-house or as consultants. After the 1989 San Francisco earthquake, when owners began hiring structural engineers to head design teams, she says, "The other specialists would be brought in after the structure was set and had to work around it." She considers split projects, where an engineer does the structural scheme and then hands off to the architect, "backward. Instead of coming on as a team, we give the client information in bits and pieces." Public clients, she reports, still prefer architect-led teams, "so they can point one finger at one person."

Presentation formats have become more sophisticated at Goody, Clancy, where two-and three-dimensional CAD is used beginning with schematics, but the greatest change has been in the affordable-housing end of the practice since Reaganomics took the federal government out of the housing business. Now, with funding dependent on a combination of state and local programs, private syndicates, linkage money from market-rate projects, and tax credits, decision-making is protracted from schematics onward—on the same project, marketing

Creative Discovery Museum, Chattanooga, Tennessee
Design: Lee H. Skolnick Architecture + Design Partnership

"The most dramatic change," says Lee Skolnick, "is that we hardly do anything that isn't translated into value engineering by a construction manager." Because private interpretive museums raise money as they go along, Skolnick encourages the inclusion of a construction manager right after schematics to "price stuff out on an ongoing basis and update the budget. They can give better support here than the architect can. Big guys like Turner (on the Discovery Museum) and Morse Diesel are increasingly willing to shepherd projects through these stages for a small fee and a shot at the construction," says Lee Skolnick, "but we can still bid it out." While all other disciplines and consultants "are in service to our design," Skolnick says a construction manager in this role should be contracted to the client, since their responsibility is not to the architect but to the budget.





1. *Jail*
2. *Police department*
3. *Community room*
4. *Lobby*
5. *Clerk*
6. *Fire department*
7. *Apparatus room*

Even the most efficient management can't stop a volatile economy and politically ambitious clients from blind-siding a project at the most inopportune moment.

qualms can cause one funding source to require sudden upgrades of systems and finishes, while another source may dry up, slashing the project scope (see case study). By contrast, the firm's college and university clients, says Clancy, "have pretty consistent] design standards, more realistic and carefully spelled out."

At Studio E, affordable housing clients can be either governments or non-profits, but the latter have to wheedle increments of financing out of government agencies based on progressively more detailed drawings. "We'll have a frantic three weeks, and then we'll sit for a month until someone takes the drawings to an agency and gets money for the next stage," says Brad Burke.

Carey reports that clients have become more knowledgeable and attentive to detailing, products, and specifications out of a concern for costs and maintenance, but the occasional problem occurs when they become "inflexible about what a friend told them." Skolnick (see case study), McDonough and Burke encourage the trend of clients' bringing in construction managers or general contractors at least by the construction document phase to, as Burke puts it, "sit down and act as cost estimators and get involved in methods of construction so the details are most up to date in method and technology." He calls them a second set of eyes, and claims that when the drawings are ready to go they are snag-free. John Clancy reports that housing consultants who package creative housing financing are increasingly adept at such issues as maintenance, but adds ruefully, "They push architects as much as contractors for cut-rate service."

Carey's public jobs go to bid, but although insurance companies increasingly advise her against recommending contractors for private jobs, she feels she owes it to the client. "This is a real specialty," she says. "It's important to have a good Rolodex for your client." Goody, Clancy still recommend general contractors for bid invitations, but finds more projects going the guaranteed-maximum route, with clients trying to lock in recession-driven low contractor costs so early that two rounds of pricing result: once at 80-percent completion of construction documents for guaranteed-maximum contracts, and again when the documents are complete.

On interpretive museums, Skolnick says funding sources and board composition have an impact on how jobs are let out. Funds from government agencies may require preferential treatment for minorities and women, he says, and he recalls one board member with political aspirations who sought to garner local support by going to open bid on a project already finely honed by a contractor through all its stages. "You face redesign if it's bid out," Skolnick says, "and a renegotiation of compensation to redo the drawings."

Clancy finds that the increase in guaranteed-maximum price over lump-sum contracts "complicates life during construction, because it needs more auditing of costs and changes, and who initiated them." Goody, Clancy has been asking for increased fees

City Hall, San Francisco, California
Owner: City of San Francisco
Preservation Architect: Carey & Co.



for the construction phases, but "not very successfully." For Carey, the problem of staying in the loop during contract administration has increased dramatically. "When construction starts,'" she says, "construction managers tend to answer questions that should be answered by the architect, sometimes without looking back at the drawings." Skolnick finds being left out of the contractor/client loop a constant frustration, but feels clients are catching on that they "lose what they originally bought if they don't have us as part of it." Williams has noted a greater tendency by third-party project or construction managers to bring more issues to the architect's attention.

Clamping down on extra services

Burke thinks payments are as timely as ever because Studio E is structured so that principal architects have direct relationships with high-ranking clients. "It's not like our bookkeeper is talking to their bookkeeper," he says. Clancy, on the other hand, points out that between the economy and increased competition among architects, clients "are clamping down on extra services, and on paying for extra services when they're due. There's more claiming of errors and omissions that architects are expected to pay for." The firm has more bills outstanding for a much longer period of time on government planning and urban development jobs.

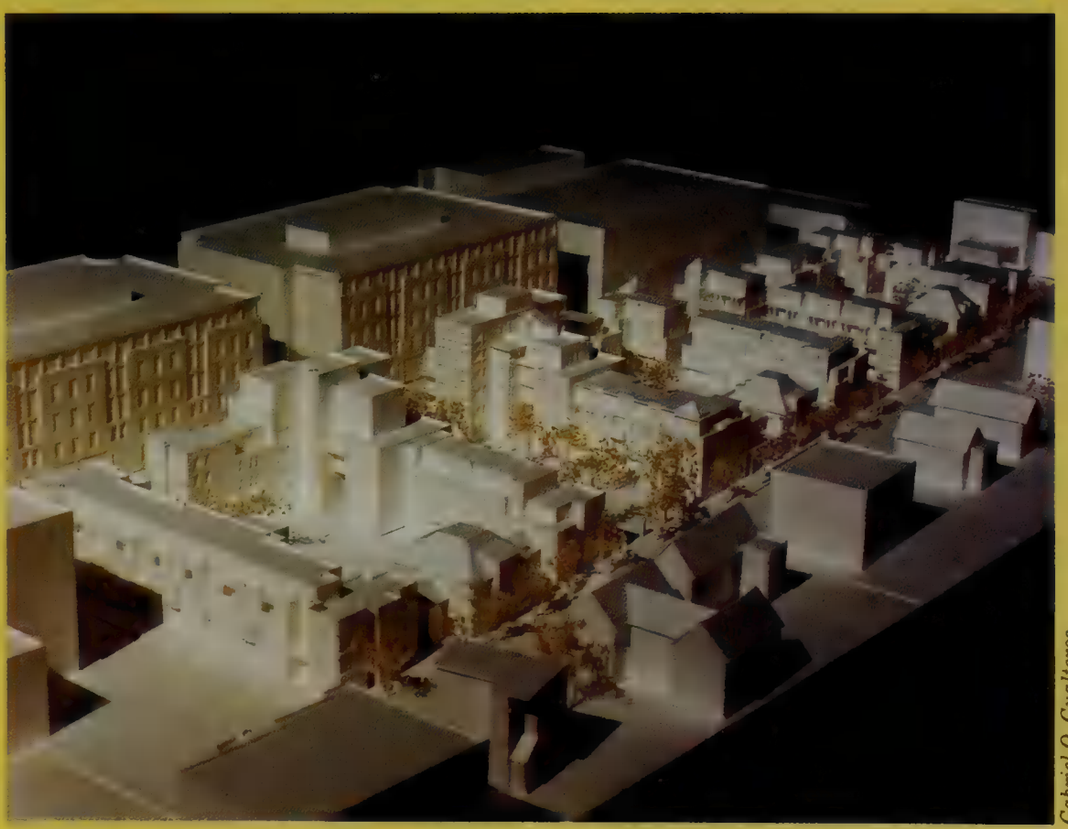
Carey says bills that used to be paid in 30 to 60 days now take 60 to 90 days. Recently denied an increased line of credit when the bank felt her invoices were too old to be considered income, she made her project managers responsible for tracking bills, which on government projects can go through six or seven hands before final approval. "Once they learn you're going to be calling, they clear it off their desks quicker," she says. Skolnick's private clients tend to pay quickly, but as government payment schedules become more protracted, he's also taken up tracking. Adding insult to injury, at least one government client, he reports, requires the architect to sign away the right to penalties for late payment.

Skolnick plans to try negotiating his liability premiums into his contracts, noting "contractors get a line item for bonds." As more clients request liability, Voinovich also is seeking compensation as part of the contract. Studio E clients accept the fact that the firm does not carry liability: "It limits the number of architects they can talk to," Burke says.

Alice Carey recalls talking the federal Department of Energy out of $5 million in coverage on the grounds it would cost more than the fee. Reactions to the idea that architects, like contractors, could negotiate overhead or benefits into a contract range from a lofty "We don't burden clients with our problems," to a hardened "My clients don't cry over my cost of doing business." ■

Safety Building, Stow, Ohio
Owner: City of Stow
Design: Myers Associates Architects
Project Manager: Voinovich Cos.

Voinovich vice president Edwin Williams says outside project managers brought in by clients "feel they are not seen as doing their jobs unless they are challenging us and putting us in the light that we don't know what the hell we are doing. It's a different relationship if they come out of architectural firms; then there's a mutual respect even when they are trying to one-up us." With a long background in correctional design, Voinovich found itself project manager for the Stow Safety Building; the firm prepared the requests for proposals and participated in the selection of Myers Associates Architects to design the combination fire department, police department and five-day jail, and the Environmental Design Group as civil engineer and landscape architect. "A jail is expensive, and they know we have design experience that can help them," says Williams.



Gabriel O. Gualteros

Package Deal

Everyone is talking about design-build. It has many permutations. It currently accounts for a small percentage of what is built. And it bears close watching.

"I've become a vocal proponent," says Easley Hamner, president of The Stubbins Associates, which put together its own team for design-build. Counters another architect, who has worked as a consultant to design-build developers: "It's a pernicious trend hitting architects left, right, and center." Together, these two architects sum up a whole range of involvment.

Knowing it when you see it

Simply put, design-build consolidates responsibility for a completed building's delivery to a client into a single contract. The concept is not new. "It started with recorded history," reminds Howard Paul, who trained as an architect, employs architects, and, as a builder/developer, has had a big hand in shaping downtown Topeka, Kansas. "It's gone on in many societies ever since."

"The most common arrangement is for the architect to be a consultant to a builder-developer, who becomes the client," says Dale Ellickson, the AIA's senior director of documents. The builder-developer is, of course, a intermediary, who has signed up to deliver a building to an end user—who once was the architect's client. Now, says Ellickson, he gets calls from harried architects in telephone booths asking what to do when the developer has ordered actions against the architect's best judgment on, for instance, code compliance. His advice: "The consultancy role [if properly structured] allows architects to walk away."

Many architects may not be that lucky. They have more binding contracts or have taken a financial interest in a project in return for their services. "The permutations of contracts are endless," says Herbert McLaughlin of Kaplan/McLaughlin/Diaz, who can identify at least 25 varieties, and has experienced most of them.

Why clients (and some architects) like it

[illegible] build simplifies the [illegible] and project report- [illegible] of Perkins [illegible] project quicker [illegible] growth of [illegible], says Hamner.

• "It's the only way to go if you're an architect," says Paul, who sees architects taking all the liability for a project and, without becoming design-builders, a small percent of the rewards.

• Government clients' "nontraditional procurement methods arise from officials' frustrations with the complexities and inefficiencies of their own traditional procurement methods," says a report from an AIA large-firm roundtable.

"We'll use design-build when and if it makes sense," responds Edward Feiner, an architect and GSA's director of facility-standards and technical division.

The AIA has had a standard design-build contract document since 1985. Its position paper on government procurement is being rewritten to delete a stated preference for traditional delivery.

Will it last?

"By the year 2000, most buildings built in the U. S. will be built by design-build," predicts a member of the Design-Build Institute of America, an organization recently formed to promote its delivery system in federal and state governments. "That's one opinion," says an architect, who notes that construction-industry organizations come and go. According to Feiner, the GSA does not have enough experience after only four year's involvment to know whether design-build works better. "The jury's still out."

Indeed, a lot could ride on the construction process that governments at every level decide to use. GSA director James Stewart has announced his agency's biggest-ever construction campaign—$6.5 billion for design, and bricks and mortar [see RECORD, September 1993, page 36]. Feiner describes the current percentage of design-build projects as "very small," and Stewart has called the process "difficult to implement." Another factor at the federal level is the way that Congress appropriates money for construction projects. It throws the logic of design-build into question. Money for design is often appropriated in a different year from money for construction, meaning that design *must* precede construction in the traditional manner. Another factor: GSA contracts are prepared with the recommendations of the regional offices that administer them. Their recommendations may well vary.

The U. S. Postal Service is going to use design-build for projects over $10 million. "It saves time and money," says John Wiernicki, manager of major facilities. But the Postal Service's construction budget of $800 million is far smaller than GSA's.

The number of domestic design-build projects of all types has doubled since 1988. But, points out *A/E Marketing Journal* editor Carolyn Kenney, design-build projects still account for only 5 percent of construction.

The professionalism question

"The problem," says Ellickson, "starts when the developer who hires the architect has different goals from the ultimate owner on, for instance, design or construction quality. Architects then have a difficult time meeting the building user's concerns. They are stuck between a rock and a hard place." The issue becomes the possible lack of ability for architects to meet their traditional fiduciary role. One large architectural firm's brochure, while offering design-build services, flatly states: "The architect does not respond to changes the owner may want after the scope of the project is agreed on without the contractor's concurrence. The architect's allegiance is to the contractor."

The brochure lists other shortcomings:

• "It is clearly inappropriate for a complex

Some highlights:
- **Keep control.** *It's essential, difficult but achievable.*
- **Contracts are key.** *Architects need access to the owner.*
- **Design-build is professional.** *That's the AIA position.*
- **Design-build may be illegal.** *That's what some states say.*

building with ill-defined or developing program requirements."

- "The owner must sign off on a final product without traditional [design] documentation."
- "The outline specifications are subject to the narrowest intrepretation."

"Still," says Perkins, "the process can work on the right type of building (one without complex design or program requirements), with the right contracts that give the architect some measure of control, and with the right developer—preferably one experienced in the process.As we shall see, Perkins has enjoyed a unique working relationship. Ellickson points to practical restrictions: "Licensing laws have branched out in different directions in each state. Some say that the architect can't work through an intermediary. Some say that the architect can't be part of a joint-venture design-build team without a high percent of ownership." These states' rationale? "Any other but the tradional owner-architect relationship muzzles an architect's responsibility for life, health, and safety."

Despite problems, the AIA recognizes design-build as a legitimate professional pursuit. It has had a standard contract form for this delivery process since 1985. According to David Johnston, director for government relations, the AIA is in the process of removing wording from its position paper on government procurement stating that tradional owner-architect contracts are the preferred means. He says that the AIA *does* have suggestions for government procurement for design-build. Among them:
- Limiting the number of teams that are picked to compete during prequalification so that a large number of unsuccessful firms will not waste their efforts.
- Clear definition of criteria for team selection.
- Adequate compensation to designers for their competition efforts.
- Assuring that the architect will have a clear communications route to the users.

Adds Johnston: "Architects must have the skill to know if design-build for a particular project has a clear advantage—for them *and* for the user."

The liability issue

One architect who is a firm principal, *and* does design-build projects on his own and with partners, says that he does not use his design firm for these projects. "If the owner is unhappy, I would have no one to sue."

The truth, according to Christopher Clark, AIA director of risk management programs, is that professional liability insurance can cover most forms of design-build architectural services, but not faults with the building caused by other factors—such as architects' performance as developers.

- Architects signing consultant contracts with contractor/developers are usually covered by their basic policies. "The contractor/developer replaces the owner for coverage purposes."
- Special riders to basic policies can cover architects who hire contractors or go into joint ventures with contractor/developers.
- Uninsurable situations occur when an architect is required to use certain products or construction systems without first evaluating them.
- "Insurance companies basically look unfavorably on situations in which the architect is unable to exercise professional judgment," sums up Clark. *Charles K. Hoyt*

"The developer who hires the architect may have different goals from the owner on design or quality. Architects then have a difficult time meeting the owners' concerns. They are stuck between a rock and a hard place."

A Few Architects' Experiences

Taking control

The Stubbins Associates put together a design-build team with a contractor to form Hyman/Stubbins, Inc. with which it has completed two houses of detention. The Suffolk County Jail [RECORD, September 1990, page 148] and the Suffolk County House of Corrections [RECORD, May 1993, page 96].
- By choosing a contractor with a good local track record as a partner, Stubbins gained clout in the competition for the projects.
- It was able to be party to contract-negotiations and defend its interests—including ongoing direct contact with the owner.
- It was flexible and inventive, developing new terms such as "working documents" to replace "contract documents," which indicated that, "in these fast-track processes, the drawings would look, and be, different."

Finessing control

Perkins Eastman Partners started out to do a design-build project for the University of Connecticut in a normal consultant's role to Atlas Construction, with which it had worked well before, so well, in fact, that the university, convinced that the two parties could work together under any circumstances, went ahead and signed a separate contract with the architects. "Find a contractor you trust," advises Bradford Perkins.

Molding new markets

Haines Lundberg Waehler has gone into the emerging mainland China developer market. Partner Robert Djerejian says the firm started by offering traditional architectural services. It found the market so unformed, however, that his firm is doing everything from construction management to creating subsidiaries for importing construction materials to finding project financing. The result is latitude in structuring fees. Djerejian calls HLW's role a "development arm" rather than a development partner. It *is* a partner on each project with a local "design studio," which in turn works with a contractor so that the process of producing construction documents becomes "seamless." He adds: "When you get into international markets, you find all sorts of new ways of doing things." ■

The Corporate Connection

Architects at work in the corporate world are busy handling everything from Mickey's Toontown to Big Blue real estate—and hiring outside architects to help.

By Joseph F. Wilkinson

See one corporate architecture department and you've seen one corporate architecture department.

No two departments are the same. They vary greatly in mission, organization, and size. Some are responsible for the main thrust of corporate image and others are appendages of engineering departments. Some do design in-house, although most of them assign design to outside firms.

Corporate departments of architecture are usually responsible for managing design and construction, selecting architects and other design consultants, representing the corporation on construction projects, providing in-house design, programming projects, administering contracts, and facilities management.

Architects who work for corporations and government agencies and reach management levels usually find themselves in the role of client, interviewing and engaging architects in private practice. They view this as a mutually beneficial arrangement. The architects who hire architects feel that the detailed assignments that they give to private practitioners define projects precisely and simplify their fulfillment. The corporate and government architects believe, too, that they can elicit more effective work from the architects they engage than a client without architectural training. "It's just that we are more knowledgeable when we hire them," says William Ulmer, adviser for architecture and engineering for Eli Lilly and Company. "They can't just show us pretty pictures and get away with it. They've got to have some meat in their presentations."

"Corporate employment has been an attractive career for many architects," according to Sanford R. Greenfield, a professor of architecture at New Jersey Institute of Technology. He has recently written a paper entitled "Corporate Architecture: Continuing Opportunities for Practice in

Among the advantages, Greenfield cites the relative stability, security, and generally higher salary and benefits when compared to employment in private practice. "Annual income for a senior corporate architect or corporate project manager is equal to or greater than that of an associate partner in a mid-sized private firm," says Greenfield. "And the income is reinforced by annual incremental growth in salary. It also avoids the typical, yet unpredictable changes of income from year to year that occur in private practice." Other advantages claimed for corporate employment over private practice have been better work environments, more reasonable work days, more paid leave, and better retirement programs.

Further attractions of corporate practice for some are the variety of projects and locations and the opportunities to work on large-scale projects and with leading architects. Of the working architects in the United States, about 14,000 work in corporations, according to the reckoning of Marc Gravallese, director for Design/Practice of the American Institute of Architects.

Although corporate and government architecture offers more secure employment than private practice, it, too, is vulnerable to a faltering economy. Most corporations today find themselves with more real estate than they need. New construction is rare and, as a result, most architectural staffs have been reduced. Even in government, just about the main source of new projects today, tax revenues are declining and architectural staffs cut back.

AIA members employed in corporations are now represented by the Corporate Architects Professional Interest Area. This 400-member group is the successor to the Architects in Industry Committee.

The variety of corporate practice is seen from these interviews with a representative group of architects employed by corporations:

Donald Brown, Architect
Process Engineering Department
Tennessee Eastman Division
Eastman Chemical Company
Kingsport, Tennessee

Eastman Chemical's Tennessee Eastman Division, a producer of chemicals, fibers, and plastics, has a construction program that runs to $300 million annually and employs an engineering and construction division of about 600 persons. The division's assignment is to provide technical assistance and support and improve existing facilities and to provide capital project management, design, and construction services for new and expanded facilities.

"My work is consultation on the technological aspects of work performed and writing standards of ways work should be done," says Donald Brown. "For example, we have a boiler that is being built and the structural steel needs fireproofing. There was a pre-award meeting with the subcontractor who will do that work and I was there to see that the subcontractor was following the proper specifications. I do the same thing with many other applications and materials for facilities, usually chemical manufacturing and service facilities. It could be a powerhouse or a cafeteria or an office building, but it is usually for manufacturing.

"Our technology changes rapidly and that is what keeps us busy. I guess about 60 percent of our work is renovation and 40 percent is new construction. We have partnerships established with large design/construct firms, such as Bechtel and Fluor Daniel, for most of the manufacturing work. If it is a commercial project, an office building, or cafeteria or change house, then we would contract that out to a conventional architect-engineer firm. Eastman's Process Engineering Department has a staff of 140 persons, two architects, about 100 engineers, mostly chemical and mechanical. The remainder are support staff."

Brown has no experience in private practice. Registered in three states, he has been with Eastman for 32 years.

Some highlights:
• **Corporate salaries.** *Annual income for a senior corporate architect is equal to or greater than an associate partner in a mid-size firm.*

• **Corporate projects.** *The variety of projects, locations, and the opportunity to work with big-name architects are some of the job attractions for corporate architects.*

Donald Cosper, Corporate Architect
Alabama Power Company
Birmingham

Donald Cosper is the chief architect of Alabama Power. His staff, half that of some years ago, consists of four registered designers, two architects, and two engineers.

"We are responsible for all of the design work throughout the company," says Cosper. "Typically, we design office buildings and warehouse-industrial type buildings. Our most recent project was a 37,000-sq-ft office building in the center of Birmingham. We designed that in-house. We do about $10-million worth of work a year, consistently."

Cosper, like the other architects on his staff, has worked in private practice, having done light commercial and residential design for five years. His first corporate experience was with Southern Company Services. Alabama Power is one of several utilities that make up Southern Company.

Richard Benedict
Architectural Design Manager
Architecture and
Design Department
Corning Incorporated
Corning, New York

Richard Benedict is the manager of the architectural design group, which reports to Sam Frank, the director of Architecture and Design. Frank is responsible for architecture, graphics, and exhibit design. This group is part of the Corporate Affairs Division of Corning. During his 20 years with Corning, Benedict has always worked in the facilities design and engineering part of the corporation.

The core of this operation has been a staff savvy in the equipment layout and installation of hot-glass kilns and glass- melting units. He sometimes works as what he calls a kind of roving guard, offering consulting services to corporate officials who initiate manufacturing projects. In addition, he works closely with those responsibile for outlying plant facilities worldwide.

The choice of architects for major buildings, such as the Decker engineering building and the more recent corporate headquarters, rests with Corning's CEO. In both cases the decision followed selection committee and design-review committee recommendation. "You do your homework right and you develop a win situation," says Benedict. More typically, the selection is made by the user/provider team from a candidate list prepared by Benedict and Frank.

Benedict's degree in architecture is from Columbia. He worked for two New York City firms for 13 years, on the Department of Housing and Urban Development Operation Breakthrough for two years, and joined Corning in 1973.

Orlando T. Maione
ADA Coordinator Building and Land
Services Department
PG&E, San Francisco

PG&E at present has a full-service Project Design and Construction section, the equivalent of an architect-engineer firm of 125 strong. Its work ranges from programming to complete building design for a corporation with buildings and power plants not unlike a small city. The unit could handle projects of up to $20 million to $30 million in construction dollars, mostly in-house. It is part of the building management group, which reports to building and land services, a unit of the corporation's general services division.

Orlando T. Maione joined PG&E eight years ago as a regional architect for an area about one-third of the system. He now handles compliance with the Americans with Disabilities Act for the entire company.

The economy has pulled back, says Maione, and this has shrunk the operation of Project Design and Construction. "We are no longer planning large service plants or large expansion projects" Maione says. "The system hasn't grown and the population hasn't spread. The company is downsizing our operation and offering retirement packages or encouraging people to find positions elsewhere. PG&E doesn't see the volume of new projects maintaining this large a group. By the end of the year, it won't be as large as it used to be."

William Ulmer
Adviser for Architecture and
Engineering
Eli Lilly and Company
Indianapolis

William Ulmer, at 56, has been with Eli Lilly and Company for 37 years. He studied architecture at the University of Cincinnati after joining the pharmaceutical company in 1957. He is at corporate level and his job is to deal with all facets of planning, design, and construction on a worldwide basis. He is an adviser for the contracts and construction division of the corporation. Over the past 10 years, Eli Lilly has averaged about $500 million per year on capital-spending projects.

"Our engineering staff has about 250 persons," says Ulmer. "Only six or seven are architects sprinkled throughout the corporation and most of the rest are engineers of various disciplines, chemical, electrical, mechanical, civil, and planners in each engineering division." Engineering divisions work with component areas, such as production, development, R & D, or office and administrative areas. Architects are assigned to all projects, even if the architecture is minimal compared with engineering services required on a project. "Lilly has always done much of its design and engineering on projects in-house. However, today the bulk of the work is done with outside consultants because of the size staff it would require to complete our workload. The bulk of our work is industrial and manufacturing projects, but with our headquarters offices, research and development buildings, and projects for our subsidiaries, we have a large variety of projects."
Continued on next page

William Sims
Senior Vice President
Walt Disney Imagineering—Florida
Glendale, California

"Our product is entertainment," says William Sims. "At Walt Disney Imagineering we do everything, from development of the original concept all the way through construction management. For instance, one attraction of our theme parks may look like a mountain, but it is really a building. It still requires working drawings, code compliance, access for the handicapped, air conditioning, everything a building requires."

Walt Disney Imagineering designs and builds the Disney theme parks worldwide. Sims directs the Florida staff that includes teams of architects, structural, mechanical, and electrical engineers, interior designers, musicians, sculptors, artists, draftsmen, financial planners, set designers, costumers.

"We just completed a project at Disneyland called Mickey's Toontown. All the buildings and facades in this new land are cartoon-scaled. There is not a straight line on any building. They are all bulbous and cartoon-looking. The architects have to be able to come up with concepts, but often our creative group, the show designers, will come up with the concept.

"We produce construction documents. We are a total architectural operation and construction manager. When it comes to construction, we use every trick in the book. There isn't a delivery process that we don't use."

In hiring architectural staff, Disney Imagineering has no rigid requirements. Architects are brought in directly from school and others from private and corporate practice. "Most of all, they have to be [illegible]," says Sims. "They have to understand [illegible] architecture is often [illegible] part of the show." Sims, registered both [illegible] engineer, has been with Disney for five years. He joined Disney from the Ralph M. Parsons Co., where he was principal-in-charge of Disney work. Before that, he served in the Air Force for 28 years as an architect.

Janet Marie Smith
Vice President of Planning and Development
Baltimore Orioles, Baltimore

Until this year, Janet Marie Smith has had only one project, the $105-million Baltimore Oriole Park at Camden Yards, which has no predictable completion date. She was hired by the Orioles in 1989 to represent their interests in the design and construction of the baseball park in downtown Baltimore. The park was opened in April 1992 and has two seasons of play behind it, but Smith's work goes on.

"The Orioles' mandate is that the job isn't finished just because the ribbon has been cut," says Smith. "We need to be vigilant about the way that we assess the ballpark, the way that fans use it, and the way that we go about improving it.

"We knew in 1990 that we would host the All-Star game this year and we wanted to use that as an opportunity for some significant addition, such as opening Camden Station and installing terrace-box television and extra seats and Orioles memorabilia. It is hard to know when the job is done."

The Orioles have an agreement with the Maryland Stadium Authority, the state's builder of the new ballpark, that the team would be an integral part of the design process and would be involved in all decisions related to planning that would have to do with the master plan, the esthetic and stylistic aspects of the architecture, and the functional aspects of the park. In 1988, the authority engaged Helmuth, Obata & Kassabaum to design the park. The Orioles owner hired Smith to represent them in the process [RECORD, October 1990, page 45].

Except for clerical support, Smith is a one-person department of corporate architecture. Her work meant constant liaison with Joe Spear, the HOK principal-in-charge; with the construction manager, Barton Malow Sverdrup; with the Orioles' graphic designer, David Ashton; and with Suzanne Forte, the interior-design consultant. Smith also spends time with other members of the Orioles sampling opinions of fans.

Smith received a bachelor of architecture degree from Mississippi State University in 1981 and master of urban planning degree from New York's City College in 1984. Except for summer internships, she has never practiced in a traditional way. From 1982 to 1984, she worked as coordinator of architecture and design for the $3-billion Battery Park City project in New York. From 1985 through 1988, Smith directed the program for the $15-million redevelopment in Pershing Square, in Los Angeles.

Spruille Braden, Director
Design and Engineering Consulting
Real Estate Services
International Business Machines
Stamford, Connecticut

Spruille Braden has been with IBM for 16 years and has worked only in Corporate Real Estate. In addition to bachelor and master degrees in architecture, he holds a master's in business administration.

"I went to work here because I enjoy variety in my work," says Braden. "There was less likelihood of specializing in one particular facility. For example, at IBM I might be working in the morning on a high-technology process manufacturing plant and in the afternoon on the layout of a relatively small office. The geography of the two projects could be as different as Japan and a small American town."

Since 1956, when IBM engaged Eliot Noyes to advise on design, IBM has been hiring prominent architects to fulfill the philosophy of Thomas J. Watson, Jr.: "Good design is good business."

Continued on next page

At peak, in the 1980s, the IBM Real Estate Services had 1,000 employees and was buying as much as $1-billion worth of construction annually. The staff has been reduced in parallel with IBM's overall reduction in workforce and its scale of operations. Like many large corporations today, IBM has more real estate than it needs.

Spruille Braden devotes much of his time and effort to managing the built environment. "As we go now into a different phase in the economic cycle," he says, "we find that because of technology advances or changes in the business structure, we don't need as much space as we did in the past.

"Our mission when IBM was expanding was to guide the expansion in terms of insuring that IBM had a quality product, a flexible product, and a product that would meet not only short-run needs, but long-run ones as well," says Braden. "I think that time has proven that we are able to do that." Under the guidance of Lee A. Dayton, general manager of IBM's Real Estate Services Division, the Design and Engineering function finds itself in the mode that asks: 'How do we manage our assets? How do we help the corporation in its financial goals through the management of the real-estate portfolio?'

"IBM is not in the real-estate business. We are not an independent brokerage firm or a real-estate developer. We are here to help the corporation manage its real-estate portfolio, renting excess office space. We come up with a real-estate strategy for those facilities, making sure we anticipate growth or a shift in the business, and then positioning the real-estate portfolio to match those business needs. Because we are no longer expanding, we are managing a built environment, as opposed to building that environment."

Braden heads a staff of architects and engineers, all of whom have had 10 years or more of private experience in architecture, engineering, or contracting. Braden and staff manage the design process. When IBM builds, Braden's group chooses the architect, prepares a panel of potential designers, interviews the firms on the panel, and selects the finalists.

Richard Kruter
Manager of Major Projects
Corporate Real Estate Services
Xerox Corporation
Stamford, Connecticut

The Xerox Corporate Real Estate Services Group handles three areas: major projects and project management (Richard Kruter's responsibility); lease management and analysis, and corporate services, which provides procedures, guidelines, and special programs. "We play different roles, depending on who our in-house customer is and what, if any, abilities they have to manage a project," says Kruter. "We'll either play an overall project manager role where we own the whole project or a supporting role. Typically, for manufacturing projects, the process engineering people tend to manage the overall program and we give them technical and support services and provide and work with an architect to house the manufacturing process.

"In other projects, we take the lead role and in that role we would identify the architectural and engineering firms involved and provide the quality and value engineering processes in line with the overall Xerox quality program initiated about 10 years ago. There are four things we try to track closely: quality, safety, cost, and schedule.

"My regional areas of responsibility are the Midwest to the East Coast and I am involved with our European company, Rank Xerox. We have two persons who handle the Americas operation, Canada, Mexico, and South America, and there is an international manager who is focusing on projects in China. We're involved in about $150-million worth of construction, about half of what we did five years ago. In general the company is doing about $150 million to $250 million annually in capital construction, with the focus of work outside the U. S."

Kruter worked in private practice for five years after getting a bachelor of architecture from City College of New York in 1973. He joined IBM corporate design group in 1978 and Xerox in 1988.

Travers Nelson
Director, Design and Development
PersonaCare, Baltimore

PersonaCare operates nine nursing homes and rehabilitation centers around the country and has three more in the acquisition stage. It has a three-person design staff—two architects and an interior designer—headed by Travers Nelson.

"We review design extensively and sometimes do initial programming, single-line sketches," says Nelson. "Almost all of our design is done by private practitioners, most of them local to projects. We hire the architects and negotiate contracts for construction on our own authority. Most of our construction contracts are cost-plus with or without a guaranteed maximum. We review the sub-bidding of the contractors quite extensively. We don't have a regional staff, so we travel a good bit. We rely on a maintenance supervisor or administrator in a facility to be the day-to-day point of contact with the contractor. We seldom have the luxury of building something in an unoccupied space, so a lot of coordination is required. We handle project management ourselves, providing turnkey services, complete with furniture and equipment, for operations staff use.

"The dollar volume of projects stays fairly constant. Relative to our early years, however, we are handling more but smaller projects. We are now carrying out high technology retrofits of existing nursing homes to support subacute care, rehabilitation therapy, and other specialized medical services. This is consistent with the trend in the health-care industry to find lower-cost alternatives to traditional hospital settings for non-acute care."

Nelson has been with PersonaCare for seven years and worked in private practice for 12 years before that. His assistant, Matt Mitchell, has been with the company for four years and worked in private practice for 10 years. ■

Two Owners Face New Facts of Life

Two diverse non-profit clients see big changes in the world in which they operate. Can the Philadelphia Zoo maintain its status as one of America's best zoos in the face of leadership changes and a prolonged economic slump within its community? And how will Kaiser Permanente, a health-care giant, meet the challenges of universal "managed" care?

The Philadelphia Zoo
Type: *Zoological park and garden owned by the City of Philadelphia but run by the private, nonprofit Zoological Society of Philadelphia.*
Description: *America's oldest zoo, opened in 1874. At 42 acres, it is the smallest of America's major zoos, yet houses a collection of 1,700 animals (considered among the most valuable and diverse in the U. S.) and an impressive collection of specimen plants.*
Visitors: *Over 1.2 million annually*
Annual Budget: *About $16 million*

Zoos are not usually associated with architects. But zoos are no longer museum-like warehouses for animals either. They've become more active in educating visitors by showing species in realistic settings. Architects have increasingly become part of this process, designing structures that help frame and interpret exhibits while resolving

Kaiser Permanente
Type: *A nonprofit health-maintenance organization comprising 12 regions in 15 states and the District of Columbia.*
Description: *Unlike many HMOs, which contract with medical practices and doctors, Kaiser Permanente employs its own doctors and staff, and builds and operates its own clinics and hospitals. The Northern California region, the focus of this report, has 3,446 licensed beds and 33 medical facilities (including 15 hospitals) for its 2,425,000 members. It will spend $400 million in 1994 on design, construction, property acquisition, and equipment.*
Members: *Over 6.5 million*

Depending on whom you talk to, Kaiser Permanente [illegible] for health-care reform, [illegible] to take advantage of changes making their way [illegible]. Or, Kaiser is at risk: "an [illegible] will have to wrestle with [illegible] competition." Until re[illegible] good category for [illegible] jockeyed to attract patients and meet everchanging technological needs, new facilities were added and older ones updated. Today, millions of square feet languish unbuilt while owners try to divine the consequences of proposed health-care reforms. At this writing, there is little doubt some kind of plan will come out of Congress in 1994—voter support is strong despite misgivings about cost and added layers of government. But what kind of plan, and who will benefit?

Kaiser certainly thinks it will. "We have the program that provides the kind of care Hillary Clinton and her group want to have provided," says Ed Denton, Associate Director of Design for the Northern California Region's Facilities Design and Construction Department. "Our membership may increase because people who are not now covered could get coverage, and people who are in fee-for-service programs will look to HMOs." (These cover nearly all services for a fixed fee.) According to Ken Lee, of Lee, Burkhart, Liu, Inc., a health-care oriented [illegible] currently working with Kaiser Permanente, "It's a split decision in our office as to whether Kaiser is well-positioned or is going to be subject to further price pressure. In the past, they've had a lock on the market. Now you see big companies that are merging, making alliances [with once-independent hospitals], and offering service comparable to Kaiser. We've already seen a lot of lower-cost HMOs get into the market."

A "systems" client
Indeed, if health-care reform leads to price-cutting, Kaiser could be at risk simply because its cost-containment strategy depends on a systematic approach that is more expensive up front. "They're what we call a systems client," says Kevin Schlaht, project director at architect Anderson DeBartolo Pan. "Kaiser is very aggressive in looking at how to cut costs without cutting quality. They're trying to systematize decision-making. They're good at setting standards, implementing and upgrading them. They're good at getting a database and knowing what things cost." In Northern California alone, a 230-person facilities design and con-

the diverse and demanding needs of animals, their keepers, and visitors.

Reviving a moribund institution

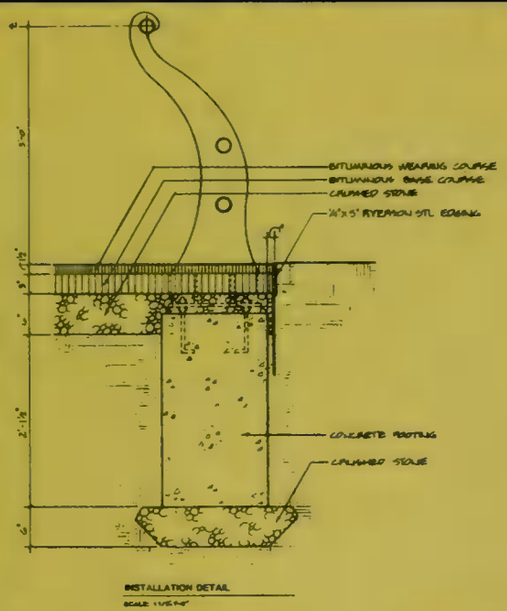
Though hobbled by a small site, a neglected infrastructure, and a city that was increasingly distracted by more pressing problems, William Donaldson, a former city planner, made the Philadelphia Zoo a leader in the 1980s. Donaldson used talented local architects, not zoo experts, to reinvent what had become a moribund institution. Pete Hoskins, a new director hired this year, must maintain the Zoo's profile in a much more austere economy. This is the reality many clients face, though the Zoo is unusual not only as a type of client but in the way it sees the creativity and open-endedness of the design process as essential to its goals.

According to Charles Dagit, partner in Dagit/Saylor architects and once a Zoo board member, "Donaldson saw the Zoo



© Matt Wargo

William Donaldson saw the zoo's arboretum-like landscape and historic exhibit structures as something to build on. Venturi Rauch and Scott Brown's Treehouse



(left) was a renovation of a 19th-century antelope house. Lights (left) and railings (right) were part of Bohlin Powell Larkin Cywinski's masterplan.



Kaiser Permanente asks architects to work with its standards on fixture locations, room layouts, and even department plans. This plan of an eye clinic by ESS Architects shows spaces within the opthalmology area covered by templates.

struction staff supports this effort, an expense, however worthy, that might not be borne by more cost-driven competitors. (Not all Kaiser regions use the same techniques.)

"We have a strong standards program that includes standard specs, equipment and furniture standards, standard department and room layout templates," explains Ed Denton. "This lets us control our quality, deliver projects quickly, and assess costs in the next 10 years that are very accurate." Wayne Ruga, president and CEO of the National Symposium on Health Care Design, is skeptical. "In England they've been struggling with their planning agency's Nucleus plans, which got bad reviews from the beginning. The VA has done standards forever without great success." Kaiser's standards, though, get fairly high marks from other architects because the HMO listens to criticism and regularly updates the standards.

Kaiser is taking the systems approach further. It has made national purchase agreements, receiving volume discounts on

Philadelphia Zoo *continued*

competing with amusement parks for the entertainment dollar." Mary Scott Cebul, vice president for planning and projects under Donaldson, explains, "It was very clear to us that for the visitors we were doing theater." Thus, in the early 1980s the Zoo hired Venturi, Rauch and Scott Brown (now Venturi, Scott Brown and Associates) and Bohlin Powell Larkin Cywinski (now Bohlin Cywinski Jackson). "One reason we didn't want 'zoo architects,' says Cebul, "is we didn't want boilerplate exhibits from other places. We were going to hang our hats on difference and sell it."

Sell it they did. VSB's Treehouse and World of Primates [RECORD, September 1985, pages 120-125, and February 1987, pages 120-125] proved wildly successful. Membership and attendance jumped. "We increased visitors and were able to do more in terms of visitor amenities and educational programs," says Cebul. "We had a mushrooming effect." Bohlin Cywinski Jackson's masterplan included standards for lighting, railings, pavings, and other site-unifying elements (opposite). The firm went on to rehabilitate a 1914 neo-Palladian pavilion into a modern habitat for birds. Ueland and Junker completed a greenhouse-topped dining facility, and Alan Holm and John Caulk turned an underused group of trees into a picnic grove reminiscent of urban European parks. By the late '80s attendance rose from 500,000 to 1.3 million annually and the budget doubled. The Zoo had a profile within the city that it hadn't had in decades, if ever.

A "risk-taking" client

To an outsider, the Zoo seemed a dream to work for: "Donaldson gave people a lot of rope," says Steven Izenour of Venturi, Scott Brown. "They were pretty risk-taking as a client." Cebul explains, "We had some pretty strong ideas about how our mission was to

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The 1982 masterplan (opposite) eschewed the "primitive hut" style seen at most zoos, opting instead to capitalize on the site's intimate scale and its wealth of historic structures—a mini-history of Philadelphia architecture ranging from Solitude, a 1785 neoclassical villa, to gatehouses by Furness and Hewitt (above), a Palladian Birdhouse by Mellor Meigs and Howe, and a stone pachyderm barn by Paul Cret.

Kaiser Permanente *continued*

building components ranging from suspended ceilings to building-management systems. Architects are required to specify the selected products. The Southern California region has experimented with prototype hospitals in which standard templates for departments are arranged in what are regarded as optimal functional and operational relationships. How good these are is really determined by how well Kaiser listens to users and translates their needs into a flexible model. Most architects think Kaiser does this well: "Kaiser is very good about spending money up front to get standards worked out," says Kevin Schlaht. "They're a very consensus-driven organization. [Kaiser sees to it that] everybody buys in so that staff and doctors accept the standards."

[illegible] year, Denton says, the HMO has [illegible] regular post-occupancy evalua- [illegible] elements.

[illegible] a dime . . ."

[illegible] Kaiser's tech- [illegible] standardizing [illegible] elements should free the architect to consider larger-scale issues: the facility's place in the community, architectural approaches that reduce patient anxiety and improve working conditions for staff. The cost and operational focus at Kaiser works against this flexibility, according to some health-care architects (none of whom would go on the record—Kaiser remains a potential client). One, not now doing work for Kaiser, says, "Architects are seen as vendors and that's a very difficult situation to be in. You don't have the opportunity to show them what architecture can do for them." He mentioned specifically that Kaiser's approach doesn't give architects enough contact with users. "There's an arrogance at Kaiser that they know their way, and it's the Kaiser way, and they are looking for the kind of architect that accepts that."

Kaiser is not on the cutting edge of some new movements in health-care design, such as "patient-focused" care—buzzwords encompassing several techniques intended to speed recovery by addressing the interpersonal, psychological, and emotional aspects





© Jane Kuhn

of the health-care environment. "They can't turn on a dime," comments Ruga, "but they do seek innovation in building." Some architects say Kaiser's exterior architecture is recognizably ordinary: "a dark-glass esthetic," commented one. "You'd drive down the freeway, and know it was ■ Kaiser building," says another, not intending ■ compliment. The consensus is that the California regions are becoming more design-oriented, seeing buildings acceptable to the community as a marketing tool.

But don't look for "star" architects at Kaiser (though Larry Bernhardt, the director of facilities design and construction in the Southern California region, is very proud of a new medical center being built to designs of Arthur Erickson with the HMC Group). Kaiser's roots are in health plans for labor unions, and members speak up against what they regard as frills. Large indoor atriums, embraced by some owners as offering a more attractive mall-like image, are seen as

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© Jordan Lagman

Two recent Kaiser Permanente projects in California suggest the range of work such a giant client needs. Lee, Burkhart, Liu designed ■ pedestrian arcade (opposite) as part of a phased, 950,000-sq-ft renovation and addition to the Woodland Hills Medical Center. A regional data center in Corona (above) by Widom Wein Cohen houses $350-million worth of computers. It's intended to operate through severe earthquakes and on its own water and power if necessary.

California

Traditional Quad Plan Battles Freeway Roar at UCLA



Johannes Van Tilburg & Partners has designed 978 units of student housing, along with childcare and community facilities, to replace 612 units of UCLA's aged housing stock. Schemes to buffer noise from the freeway that splits the site include not only sound wall and landscaping but also the deployment of the California craftsman vernacular buildings on quad-like interior courtyards, with single-loaded-corridor buildings closest to the freeway. Sixty-six affordable duplex homes for faculty and staff have been proposed for the final phase of the project. ■



New Jersey

Staircase to Create Vertical Campus At Technology Institute

In order to unite the existing architecture, engineering, and student-services facilities scattered among several buildings at the New Jersey Institute of Technology, Smith-Miller + Hawkinson has designed an open-air entry courtyard, stair, and ramp that also serve as a "vertical campus" for the Newark school. Ramp and stair, lead respectively to the engineering and architecture departments, with the space between occupied by a small [illegible] hall. The upper stair [illegible] among [illegible] inclined [illegible] and [illegible] the engineering [illegible]. ■



Design

Briefs

Beirut Reconstruction

The Lebanese government plans a $3-billion reconstruction of war-torn central Beirut, entailing 38-million sq ft of buildings for government, business (with a 40-story trade center), and cultural functions that include a new national library, an opera and theater hall, and a city museum grouped in a central park. Pre-war souks are to be reconstructed on their original sites. By 2000, a new airport is expected to serve 6-million travelers. In the meantime, Martyrs' Square, once the heart of the city, is edged with ruins, a significant part of the population is homeless, and critics fear the plans will drive Lebanon into deep debt. *Tracy Metz*

Moves, Changes

- Gerald McCue, former dean of Harvard's Graduate School of Design, becomes John T. Dunlop Professor of Housing Studies, a new position jointly established by the Kennedy School of Government and the GSD, where McCue continues as professor of architecture and urban design.
- Richard Roth, Jr., retired chairman of Emery Roth & Sons, and his son Richard Lee Roth, the firm's former director of construction service, have formed the Richard Roth Consulting Group to advise architectural, engineering, and related industries. They will also represent Emery Roth in Florida, the Caribbean, and Latin America.
- Skidmore, Owings & Merrill has elected partner Adrian D. Smith chief executive officer, a post replacing chairman. The firm's first and only chairman, David Childs, remains as senior member and design partner.
- Edward Larrabee Barnes/John M.Y. Lee will part at year-end, but remain in the same offices, with Lee in a new partnership with Michael Timchula, and Barnes in a new individual architecture and consulting practice.

Deadline

December 10 is the deadline for NEA Design Arts grants. Application guidelines are available from Room 627, 1100 Pennsylvania Avenue N. W., Washington, D. C., 201/682-5437. ■

Delaware

Minority Developers Back Design to Energize Struggling Downtown



A minority development team spearheaded by basketball great Julius Irving plans to reanimate Wilmington's struggling downtown with a civic and entertainment center designed by Stoutenborough, Inc., Architects & Planners, for 3.7 acres next to the Christina River and the nation's ninth most active Amtrak station. The $16-million Riverview Plaza, scheduled to open late in 1994, will contain 14 movie screens, a 1,000-seat amphitheater, an indoor amusement park, and space for traveling cultural exhibits. ■

Florida

Steel to Make New Homes a Steal for Hurricane Victims



A coalition of steel companies, steel-roll formers, and coil coaters have joined forces under the American Iron and Steel Institute to build Andrew Estates South, a complex of 200 new homes in Florida City, an area almost one-third destroyed by last year's hurricane. The 1,000-sq-ft homes, designed by Ralph Iler of Iler Dummich Architects for hurricane victims with annual incomes under $15,000, will use steel frames and roofing systems up to 25 times more resistant to high winds than wood, and have market values of $50,000. ■

New York City

Extra Glitz Precedes Gray Flannel Deluge

With four buttoned-up Times Square office towers deferred until the market improves, a Robert A. M. Stern-led design team has devised guidelines to temporarily intensify the area's raucous qualities by combining new construction, refurbishment, and theater renovation, all to incorporate electrifying facade and rooftop signage. Disney reportedly is eyeing one theater. The city is expected to condemn sex- and drug-related sites on 42nd Street near Eighth Avenue to make way for a convention hotel, high-volume restaurant, and retail. The concepts (photos below) include two of the eventual office-tower sites, whose developers have agreed to temporarily renovate existing buildings in the boisterous spirit of the guidelines; local protest reportedly has halted New York State consideration of a proposal to reward them with towers 100 ft higher than planned. ■





1994 Construction Outlook: Dodge/Sweet's Finds Bright Spots for 1994

By Robert Murray

Constrained by the excesses of the previous decade and tepid performance in the general economy, the rebound by construction from its 1990-91 downturn could best be described as subdued and selective. Single-family housing led the way before faltering this year, and only scattered help has come from the industry's other sectors. The big question facing construction at the end of 1993 is whether the current recovery is in danger of stalling or, put differently, does it have the stamina to become more broad-based?

A look at contract-award data over the past year and a half emphasizes the on-again, off-again pattern of the upturn. From the recession's bottom in the first quarter of 1991, the Dodge Index of construction contracting climbed almost 20 percent through the start of 1992. But then the recovery began to waiver as activity slipped back during 1992's midyear, due to a softening housebuilding market and a loss of momentum for both public works and institutional building. Last year's fourth-quarter rebound got the recovery back on track, bringing the gain for 1992 as a whole to 9 percent—well below the pace of previous first years of recovery, but still moving in the right direction.

The early months of 1993 demonstrated that the upturn would remain tenuous, as contracting slipped back 1 percent. The harsh winter weather and sagging consumer confidence took their toll, and then a lackluster second-quarter in the economy raised growing concern that the recovery had run out of steam. Despite the lowest mortgage rates in 20 years, single-family housing was unable to show the strong upward response which many had expected. A modest economic strengthening in the third quarter then appeared to get the recovery back on track.

For 1993, the restrained housing sector [illegible] total construction will fall short [illegible] to mid-steady 8-percent gain [illegible] earlier; the current [illegible] percent. Fortunately [illegible] of [illegible] highways [illegible] able improve- [illegible] hesitant expansion, with only scattered improvement, all that can be expected? The trough-to-peak gain shown during the first two years of this recovery has raised total construction-contract value just 13 percent, compared to a 36-percent rise in the early 1980s.

To get a better sense of where construction is headed in the next year, it's necessary to address several key issues:

- Has single-family homebuilding hit the ceiling, or is there still further room for expansion given low mortgage rates?
- What impact will the Clinton budget and the imperative of deficit reduction have on public-works spending?
- Has the recent pause in institutional building run its course, or will fiscal stress at the state and local level continue to outweigh demographic and societal pressures?
- Is commercial and industrial building still headed downward, or has the bottom for this devastated sector finally been reached?

Economic environment

In the broadest sense, the economic backdrop against which these issues can be addressed will remain one of modest expansion. First and second quarter 1993 data for GDP growth came in at a meager 0.8 percent and 1.8 percent, respectively, and, assuming a second-half pickup is occurring, it still leaves growth for the year optimistically at about 2.5 percent. Corporate downsizing is still much a part of the current scene, contributing to the meager gains in permanent employment as well as weak levels of consumer confidence. Cutbacks in military spending have taken a harsh toll and will have a lingering impact into 1994.

On the plus side, inflation remains very much in check, with recent months showing only slight increases in consumer prices and declines in producer prices. The 4.3-cent increase in the gas tax is not likely to cause much disruption, due to earlier weakening of oil prices. The chance for monetary tightening is negligible over the next few quarters, even with the economy picking up some momentum and climbing close to the consensus estimate of 3 percent in 1994.

The progress of the Clinton Administration's economic program through Congress, and its passage in August, has been an important part of the near-term environment. Without question the drop in long-term rates has been a significant economic event this year, allowing for an upturn in the purchase of such consumer durables as automobiles, though not houses (at least during the first half of the year). Normally it requires six to nine months for the benefits of low rates to have an impact, a sequence that is probably taking longer this time since consumers are refinancing mortgages and reducing debt loads rather than taking on new purchases. Still, the strength coming from lower rates is likely to offset much of the negatives of higher taxes over the next year.

The Clinton budget also contained provisions affecting the real-estate industry:

- Removing passive-loss restrictions on real-estate professionals, allowing them to offset ordinary income with real-estate losses. On the negative side, the depreciation period for commercial real estate was lengthened from 31.5 to 39 years, reducing the amount that can be deducted from taxable income each year.
- Reinstating the tax credit for low-income rental housing. These credits, aimed at individuals and corporations financing low-income housing, had expired in mid-1992.
- Authorizing state and local governments to issue mortgage revenue bonds to finance the house purchases of moderate-income families.

On balance, the impact of these provisions is likely to be neutral to slightly positive, but in no way will it encourage a boom in the 1990s. The glut of commercial space is still present, and it's assumed that bankers and other financing sources for the speculative projects of a decade ago have learned their lesson.

Single-family housing

This year's drop in mortgage rates offered the potential for the most immediate support to the construction industry. Fixed mortgage rates fell to 7.5 percent in March and, withstanding a brief inflation scare, settled closer to the 7-percent mark by summer. But, as reported by Dodge, single-family housing dropped back to a 950,000 annual rate by the second quarter, 5 percent below

A hesitant recovery: In the slow-growth 1990s, the construction industry has fit in with the times.

the resurgent volume attained at the end of last year. Clearly the connection between mortgage rates and the level of starts was not living up to its previous billing.

With the unemployment rate hanging close to 7 percent, this weak picture was having an adverse impact on consumer-confidence levels. Indeed, the erosion of consumer confidence over the first half of 1993 gave back the gains achieved right after last November's election. In addition, the defeat of the stimulus package, in combination with Congressional debate over the fate of the Clinton economic program itself, undermined some of the earlier sense that the Administration was correctly addressing the nation's problems. Potential homebuyers lack their former sense of urgency—low inflation diminishes the perceived need to buy a home before prices rise.

The third quarter witnessed some improvement for housing, coinciding with a modest turnaround in consumer confidence and occasional signs that the general economy was in fact strengthening. Assuming that this upward trend continues through the end of the year, the 1993 annual total is now estimated at 990,000 units, a subdued gain of 3 percent over 1992. Apparently the environment of the 1990s is stretching out the cyclical upturn for housing, since it has yet to reach what recent evidence suggests is the demographic potential for this market.

Over the 1983-89 period, single-family housing averaged one-million units per year. Favorable demographics are mostly responsible for this extended plateau, since during the second half of the 1980s the '50s generation was swelling the ranks of the 35- to 54-year olds by about 9-million persons. This age group, of course, is the one most likely to buy houses, whether it means moving from apartment to starter home, upgrading to a larger home, or purchasing a second home. The first half of the 1990s will see this group grow by more than 10-million persons, keeping the demographic fundamentals of the single-family market strong. Furthermore, the Census Bureau has raised its population estimates to take into account greater growth in immigration for the years ahead.

Geography has been another useful factor in explaining the housing pattern, especially given the weakened relationship of housing to interest rates witnessed over the past few years. Whereas the 1970s saw regional housing markets move in accordance with the national pattern, the 1980s brought first "rolling recoveries" and then "rolling recessions," as compensating gains and losses among regions affected the national total. In the mid-1980s, the South Central was the first to experience a downturn, and its slack was then picked up by surging volume in the Northeast and South Atlantic. When these two regions weakened in 1989, a second peak of activity in the West made up for shortfall. The North Central remained apart from the boom-and-bust behavior of the other regions, so its downturn in 1990-91 was only about 2 percent—much less than experienced elsewhere, but also limiting this region's upside potential in the current recovery. The slow response in the East to joining the recovery over the past year and a half has been an important factor muting the national gain. One measure of how depressed California remains relative to the rest of the nation comes from it share of single-family starts: Back in 1989 its contribution to the national total stood at 16 percent; by 1993 it had fallen to 7 percent.

Some of the deferred demand from the 1990-91 downturn and now the incomplete recovery in 1992-93 should lead to modest growth in 1994. With inflation low, mortgage rates are expected to remain close to current levels at least through mid-1994. Consumer confidence is a tougher call, but at least some of the uncertainty surrounding the Clinton budget package has been removed with its August passage. The mortgage-revenue bond provisions of the Clinton program should bring money at below-market rates to moderate income homebuyers. The credit crunch remains an impediment to developers, but a recent survey by the Federal Reserve of 60 banks showed that some have eased standards for loans to small businesses—certainly a hopeful change from a year ago.

With this array of positives, single-family housing is projected to rise 6 percent in 1994 to 1,050,000 units. In effect, the growth expected during the first stage of a construction recovery is being stretched over three years. Interestingly, the regional pattern for 1994 is expected to be similar to what is taking place this year. The strongest gains will be shown by the South Central, which has advanced moderately since 1991 from its depressed late-1980s level. Not much can be anticipated from the West, where the distressed Southern California economy will limit expansion through at least midyear. Some support for the West should come from the mountain states, albeit at a low volume. The increase anticipated for the Midwest will be modest, since it avoided the earlier collapse of the coastal regions and its manufacturing base remains vulnerable to retrenchment. The Northeast will continue the subdued expansion reported this year, still affected by defense cutbacks and corporate layoffs.

Public-works construction

The defeat of the economic stimulus package in April meant some limitation of the near-term potential for public-works construction. Although there was talk of bringing back the highway portion, it didn't get far with a Congress increasingly trying to assume a deficit-reduction posture. Even so, public-works construction has been able to make it through 1993 in relatively strong condition, climbing above the narrow $43 to $47 billion plateau where it settled during the 1987-92 period.

Earlier in 1992, public works appeared poised for substantial expansion with the new highway legislation in place. The Intermodal Surface Transportation Efficiency Act (ISTEA) provided up to $155 billion of federal funding over a six-year period for highways, bridges, and mass transit, representing a 20-percent advance over the previous bill. Congress, however, offered less than the full amount authorized under the bill, responding to strict limits on additional discretionary spending without corresponding spending cuts or tax increases. This less-than-full implementation of ISTEA was also present as Congress appropriated funds for fiscal 1993. At about $18 billion, the amount was less than the $20.5 billion called for in the highway bill.

Continued on next page

Still, highway and bridge construction came through the first half of 1993 in surprisingly strong fashion as some of last year's deferred projects made it to the construction site. For the year, the two categories are projected to show annual gains of 12 and 15 percent, respectively—the first time double-digit increases have been seen since 1989. One positive at work here is that state governments, with capital budgets separate from operating budgets, are not subject to the same constraints as the federal government. Furthermore, states have raised gasoline taxes over the past several years, making them better able to withstand fiscal pressures. The large increase in the state gas tax approved by California voters is one indication of how tax-weary voter are more likely to approve tax increases dedicated to specific purposes.

For fiscal 1994, Congress appropriated funds coming closer to the $20.5-billion mark authorized under ISTEA. This, in combination with the enhanced role taken on by the states, should lead to at least one more year of transportation-construction rises above 10 percent. Beyond 1994, growth should subside as federal support stabilizes at a level close to what is authorized in ISTEA. As part of the new Clinton budget, an earlier increase in the gas tax of 2.5 cents directed at deficit reduction (part of the 1990 budget agreement) will be extended after 1995 and switched to the Highway Trust Fund.

A less positive picture is faced by the environmental-public-works categories, due to the shift in funding responsibility away from the federal government in recent years. The funding levels being set by Congress for sewer, water-resource, and water-supply projects seem more likely to be constrained by deficit-reduction pressures than the transportation categories.

The sewer and waste-disposal category of- [illegible] the most clear-cut example of [illegible] in funding influenced activity. [illegible] this type of construction [illegible] of direct federal [illegible] revolving-loan-fund [illegible] direct federal grants in [illegible]-loan-fund programs [illegible] Clean Water Act

1993 National Estimates Dodge Construction Potentials

October 1993

		1993 Preliminary	1994 Forecast	Percent Change 1994/93
Nonresidential Buildings				
Floor Area (millions of sq. ft.)	Office Buildings	80	87	+ 9
	Stores and Other Commercial	200	215	+ 8
	Other Commercial	170	188	+ 11
	Manufacturing Buildings	105	115	+ 10
	Total Commercial and Mfg.	555	605	+ 9
	Educational	159	167	+ 5
	Hospital and Health	73	70	– 4
	Other Nonresidential Buildings	143	158	+ 10
	Total Institutional and Other	375	395	+ 5
	TOTAL NONRESIDENTIAL BUILDINGS	930	1,000	+ 8
Contract Value (millions of $)	Office Buildings	$ 11,350	$ 12,475	+ 10
	Stores and Other Commercial	12,925	14,250	+ 10
	Other Commercial	8,400	9,650	+ 15
	Manufacturing Buildings	7,525	8,575	+ 14
	Total Commercial and Mfg.	$ 40,200	44,950	+ 12
	Educational	$ 18,900	$ 20,600	+ 9
	Hospital and Health	10,400	10,325	– 1
	Other Nonresidential Buildings	16,375	18,675	+ 14
	Total Institutional and Other	45,675	$ 49,600	+ 9
	TOTAL NONRESIDENTIAL BUILDINGS	$ 85,875	$ 94,550	+ 10
Residential Buildings				
Dwelling Units* (thous. of units)	Singlefamily Houses	990	1,050	+ 6
	Multifamily Housing	175	190	+ 9
	Total Housekeeping Residential	1,165	1,240	+ 6
Floor Area (millions of sq. ft.)	Singlefamily Houses	1,795	1,905	+ 6
	Multifamily Housing	185	200	+ 8
	Total Residential Buildings	1,980	2,105	+ 6
Contract Value (millions of $)	Singlefamily Houses	$106,925	$116,225	+ 9
	Multifamily Housing	11,150	12,275	+ 10
	Total Residential Buildings	$118,075	$128,500	+ 9
Nonbuilding Construction				
Contract Value (millions of $)	Transportation Construction	$ 35,350	$ 39,200	+ 11
	Environmental Construction	16,025	16,650	+ 4
	Total Public Works	$ 51,375	$ 55,850	+ 9
	Utilities	$ 5,800	$ 6,200	+ 7
	TOTAL NONBUILDING CONSTRUCTION	$ 57,175	$ 62,050	+ 9
All Construction				
Contract Value (millions of $)	**Total Construction**	$261,125	$285,100	+ 9
	Dodge Index (1987=100)	101	110	

F.W. Dodge basis

1993 Regional Estimates Dodge Construction Potentials

October, 1993

Construction Contract Value (millions of dollars)	1993 Preliminary	1994 Forecast	Percent Change 1994/93		1993 Preliminary	1994 Forecast	Percent Change 1994/93
Northeast							
CT, ME, MA, NH, NJ, NY, PA, RI, VT							
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$ 6,725	$ 7,325	+ 9	Singlefamily Houses	$12,400	$13,725	+ 11
Institutional and Other	8,775	9,725	+ 11	Multifamily Houses	2,175	2,325	+ 7
Total	$15,500	$17,050	+ 10	**Total**	$14,575	$16,050	+ 10
Nonbuilding Construction	$12,600	$13,075	+ 4	**TOTAL CONSTRUCTION**	$42,675	$46,175	+ 8
North Central							
IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI							
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$ 9,450	$10,150	+ 7	Singlefamily Houses	$23,625	$24,600	+ 4
Institutional and Other	11,200	11,775	+ 5	Multifamily Housing	2,950	3,100	+ 5
Total	$20,650	$21,925	+ 6	**Total**	$26,575	$27,700	+ 4
Nonbuilding Construction	$11,725	$13,475	+ 15	**TOTAL CONSTRUCTION**	$58,950	$63,100	+ 7
South Atlantic							
DE, DC, FL, GA, MD, NC, SC, VA, WV							
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$ 7,375	$ 8,725	+ 18	Singlefamily Houses	$26,625	$30,800	+ 16
Institutional and Other	8,550	9,675	+ 13	Multifamily Housing	2,325	2,775	+ 19
Total	$15,925	$18,400	+ 16	**Total**	$28,950	$33,575	+ 16
Nonbuilding Construction	$10,975	$11,550	+ 5	**TOTAL CONSTRUCTION**	$55,850	$63,525	+ 14
South Central							
AL, AR, KY, LA, MS, OK, TN, TX							
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$ 6,425	$ 7,750	+ 21	Singlefamily Houses	$17,900	$19,400	+ 8
Institutional and Other	7,250	7,975	+ 10	Multifamily Housing	1,125	1,275	+ 13
Total	$13,675	$15,725	+ 15	**Total**	$19,025	$20,675	+ 9
Nonbuilding Construction	$ 9,000	$10,050	+ 12	**TOTAL CONSTRUCTION**	$41,700	$46,450	+ 11
West							
AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY							
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$10,225	$11,000	+ 8	Singlefamily Houses	$26,375	$27,700	+ 5
Institutional and Other	9,900	10,450	+ 6	Multifamily Housing	2,575	2,800	+ 9
Total	$20,125	$21,450	+ 7	**Total**	$28,950	$30,500	+ 5
Nonbuilding Construction	$12,875	$13,900	+ 8	**TOTAL CONSTRUCTION**	$61,950	$65,850	+ 6

Prepared by the Economics Department, Construction Information Group, McGraw-Hill Information Services Company. Robert Murray, vice president, economic affairs.

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Amendments (1987), federal money was used to help establish SRFs in each state, with the states then making their own contribution. The SRF would then become the source of construction loans, or the foundation on which to base a state bond issue to fund waste treatment projects. But as a 1992 report by the EPA to Congress noted, "At this time state funding in general does not appear to be increasing sufficently to offset the phase out of federal SRF monies."

Contracting levels since 1990 relative to the second half of the 1980s seem to bear this out. The 1990-92 total for sewers was ere down 7 percent (in current dollars) from the previous three years. Current plans call for the federal government to decrease and end capitalization of state revolving-loan funds by the beginning of 1995, leaving states and localities almost completely responsible for funding. Activity for sewers in 1993 is projected to show no increase, with only a modest 2 percent gain expected in 1994. On the plus side, Congress has begun to consider legislation which would offer renewed funding during the second half of the 1990s, so the public-works emphasis could switch back to the environmental projects in a few years.

The status of water-supply construction has been less severe than that for sewers. A backlog of systems which need expansion still exists; the 1980s building boom was so extensive that some municipalities continue to add capacity to satisfy the demand created. In addition, the Safe Drinking Water Act of 1986 mandated a significant amount of construction, and Congress has recently addressed legislation which would set up SRFs for local communities to build drinking-water treatment plants or make improvements to older plants.

Overall, public-works construction is expected to post a 9-percent increase in 1993, followed by another 9-percent increase in 1994. In both years, transportation construction will lead the way with gains in excess of 10 percent. Environmental construction is expected to rise a meager one percent this year, and then show a stronger 4-percent advance in 1994. Rebuilding efforts from this summer's Midwest flood should give a push

Continued on page 120

Specification Series:Paints and Coatings

By Mark J. Kalin

Architects select coatings on the basis of color ranges available, as well as performance. Anodizing, with its limited color range, will always fight an uphill battle with other metal finishes including fluoropolymers like Kynar and Hylar that come in many bright colors. Some architects seem to be constantly seeking finishes for all types of materials that imitate metal or granite, or offer an infinite range of choices.

When architects get down to specifications, however, they have the arduous tasks of matching coating to substrate, manufacturer to coating, and volatile-organic-compound compliance to manufacturer. Few specifiers tackle this problem alone. It is important to use coating manufacturers as resources in evaluating paint perfomance, discussing current issues in coating failures, and preparing an effective short-form specification cannot be stressed enough.

Coating manufacturers

Coating formulations change with time and location. Product availability is not a constant. Several manufacturers provide charts showing those of their products that meet environmental regulations on a state-by-state basis. The practical specifier needs to use manufacturers' representatives as a resource for this type of information. Different companies recommend different products for the same use, but there is always some consensus among them. For example, the discussion will continue for years on the merits of latex compared to alkyd finish. There *is* widespread agreement, however, that the most suitable primer for gypsum drywall is latex based.

Manufacturers have fine-tuned their formulations to the extent that a product designed for field-application and curing may fail if applied in a factory where accelerated curing conditions are used. A coating that adheres when applied immediately after galvanizing may not work after a period of time when zinc-oxide naturally forms on the galvanized surface. On such issues, manufacturers' representatives are again the best source for current information. As an example of how finishes vary with the location, California makes it illegal even to specify a coating that doesn't meet volatile-organic-compound and other environmental regulations. And it imposes stiff fines on the design professional who does so. The state has many environmental districts, and coatings allowed at the time of bidding may not be allowable a year later when the project is ready for painting. The trend towards increasingly restrictive government regulations will certainly continue.

There is a high possibility of a coating failing at sometime during the life of any project. "As much as 80 percent of all coating failures can be directly attributed to inadequate surface preparation that hinders coating adhesion."

Coating failures

According to industry sources, "as much as 80 percent of all coating failures can be directly attributed to inadequate surface preparation that hinders coating adhesion." The rest of coating failures are due to such causes as inaccurate product selection, improper application, manufacturing problems, and in-service deterioration. If the problem is failure in adhesion, the solution can be found by examining surface preparation and testing surface compatibility with the coating. Was the shop-applied primer compatible with the field-applied top coat? In the case of wood, was it seasoned enough to allow the paint to stick? In the case of metal, the issues are following the most cost-effective SSPC (Steel Structures Painting Council) preparation method while assuring effective performance. Some painting-adhesion failures are only discovered when sealant-adhesion tests pull the coating off the substrate.

Various coating adhesion tests have been developed. They include cross-hatching and peel-off tests. For example, the thorough specifier can require coatings applied over galvanizing that will have a pull-off strength of 500 psi in an average of three tests, when tested according to ASTM D4541. However, most specifications require little testing, relying more on manufacturers' guidelines for surface preparation. Correct surface preparation is a growing issue.

Short-form specifications

Because there is a high possibility of a coating failing at some time over its life on any project, longer and longer specifications would seem to be in order. Some specifiers' typical specification for paint can be as long as 14 pages, while the painting section in AIA MasterSpec is 46 pages long. Amanufacturer's specifications can be endless depending on their product range. The one-page specification (right) would seem to fly in the face of precedent.

However, a specification similar to this can work for many projects if:

1. You consult manufacturers on each project and select specific products.
2. You make sure the drawings are clear on the surfaces to be painted.
3. You require the painting subcontractor to make specified submittals.
4. You check regularly during construction administration to assure that the installed work matches initial mock-ups.

...president of Kalin Associates, ...consulting firm in Newton, ...author of the AIA ...publications and is ...the AIA Masterspec ...committee.

While specifications for paints and coatings are frequently extensive, they can, with care, be reduced to one page.

Paints and Coatings Guide Specification

PART 1. GENERAL

1.01 Summary

A. Paint unfinished interior surfaces as scheduled.
B. Paint unfinished exterior surfaces as scheduled.
C. Repaint existing surfaces in areas of remodeling.

1.02 Submittals

A. Submit schedule of coatings proposed for use. Include:
1. Name of manufacturer
2. Product data
3. Surface preparation
4. Application method
5. Dry-film thickness.
B. Submit color chips for initial selection of colors showing color and gloss.
C. Provide field-applied mock-ups of each color and finish selected.

1.03 Quality assurance

A. Comply with volatile-organic-compound and other environmental regulations.
B. Provide primer and finish coats by the same manufacturer.
C. Test sample area for adhesion for each type of paint.
D. Use experienced painters.

1.04 Delivery, storage, and handling

A. Deliver materials in labeled containers.
B. Protect materials from temperature extremes.
C. Store materials in a well-ventilated area.
D. Prevent fire hazards.

PART 2. PRODUCTS

2.01 Manufacturers:

list them)

2.02 Materials

A. Provide top-of-line commercial-quality products for all coating systems.
B. Provide colors selected from manufacturer's full range of standard colors.
C. Match existing colors as required in areas of remodeling.

2.03 Interior-paint schedule

A. Gypsum drywall:
1. Latex primer, one coat.
2. Latex or alkyd semigloss finish, two coats.
B. Plaster:
1. Latex primer, one coat.
2. Latex or alkyd semigloss finish, two coats.
C. Wood with paint finish:
1. Interior alkyd-enamel undercoat, one coat.
2. Interior semigloss latex or alkyd-enamel finish, two coats.
D. Wood with stain finish:
1. Interior oil-base wood stain, one coat.
2. Oil-base gloss varnish primer, one coat.
3. Oil-base satin-varnish finish, one coat.
E. Concrete masonry units:
1. Latex block filler, one coat.
2. Latex or alkyd semigloss finish, two coats.
F. Concrete:
1. Latex primer, one coat.
2. Latex or alkyd semigloss finish, two coats.
G. Ferrous metals:
1. Rust-inhibiting primer, one coat.
2. Latex or alkyd semigloss enamel, two coats.

2.04 Exterior-paint schedule

A. Wood with stain finish:
1. Oil- or alkyd-resin base semi-transparent stain, two coats.
B. Wood with paint finish:
1. Exterior primer, one coat.
2. Semigloss latex or alkyd enamel finish, two coats.
C. Concrete masonry units:
1. Latex block filler, one coat.
2. Acrylic-latex semigloss finish, two coats.
D. Concrete and stucco:
1. Acrylic-latex primer, one coat.
2. Acrylic-latex semigloss finish, two coats.
E. Ferrous metal:
1. Rust-inhibiting primer, one coat.
2. Alkyd semigloss enamel, two coats.
F. Galvanized metal:
1. Galvanized-metal primer, one coat.
2. Gloss alkyd enamel, two coats.

PART 3. EXECUTION

3.01 Examination

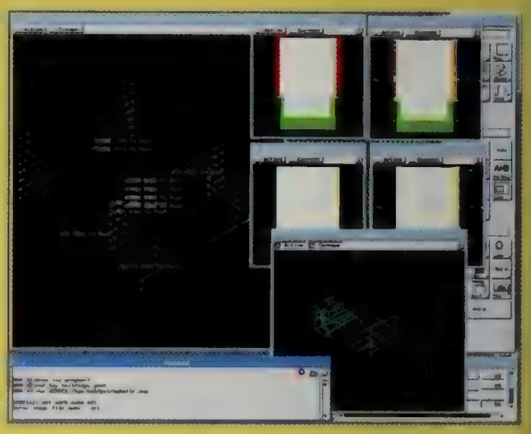
A. Inspect substrates and report unsatisfactory conditions in writing.
B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 Installation

A. Comply with manufacturer's written recommendations.
B. Remove cover plates, and protect hardware and adjacent surfaces.
C. Prepare surfaces for painting, including cleaning if necessary.
D. Sand before painting until smooth and flat, and sand between coats.
E. Apply paint to dry, sound substrates only.
F. Apply paint to achieve manufacturer's recommended dry-film thicknesses.
G. Match approved mock-ups for color and gloss.
H. Recoat areas that show bleed-through or defects.
I. Clean paint spatter from adjacent surfaces.
J. Replace cover plates and remove temporary protection.
K. Touch-up damaged surfaces at completion of construction.

For manufacturers' information, see page 125

IBM Architecture & Engineering Series: A New Twist



The facilities-management module in action (the site is an I. M. Pei building occupied by IBM in Purchase, New York). Uses are color coded; the space report is also on-screen.

By Steven S. Ross

When IBM and Skidmore, Owings & Merrill collaborated on CAD back in the mid-'80s, the corporate marketers saw an irresistible image: The largest computer company and one of the largest architecture practices, knowing exactly what was good for the profession.

It didn't turn out that way.

The "profession" apparently suspected that software produced by such high-powered firms would be too high-octane for typical practices. Architects had also become leery of "proprietary" systems. IBM had, in fact, originally groomed A&ES for the RT computer, an underpowered model that was subsequently killed.

Things have changed. SOM spun off its CAD-development business to Premisys, an independent company. A&ES (IBM was planning a name change as we went to press) runs on the RISC System/6000, a successful line with many markets, and has been ported (easily) to Hewlett-Packard Apollo-derived computers. The software is now considered a moderate success but hasn't replaced the market leaders.

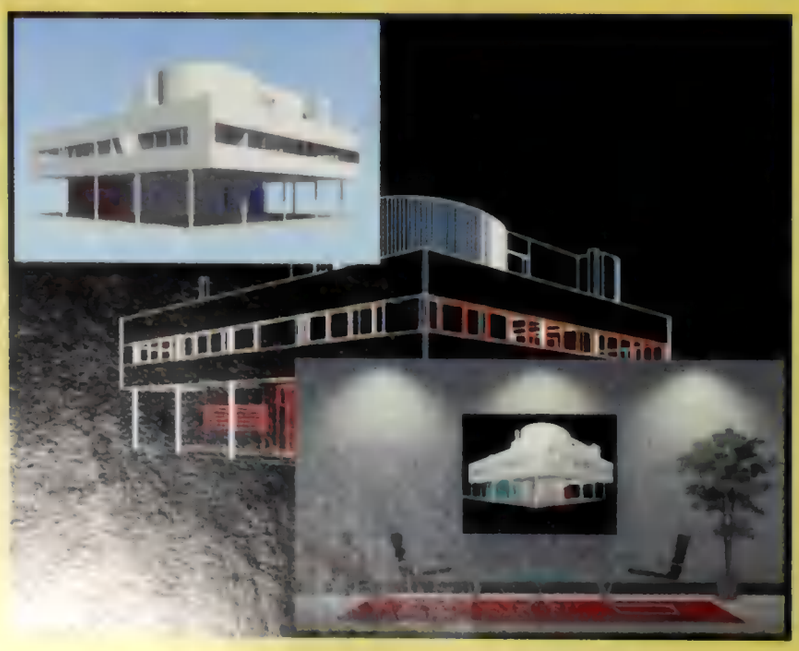
In the meantime, workstations capable of running A&ES have gotten much faster and much cheaper. A single seat (hardware and software) now runs about $15,000. Network configurations come in at $11,000 to $13,000 a seat. That makes A&ES roughly competitive with packages that are somewhat less capable, especially on a network.

What's more, the profession's evolving needs have played to its strong points: Strong database links, good control of 3-D (everything you draw, in fact, is a 3-D entity), and built-in modeling are all in the basic "graphics" module of A&ES. You may never need anything more.

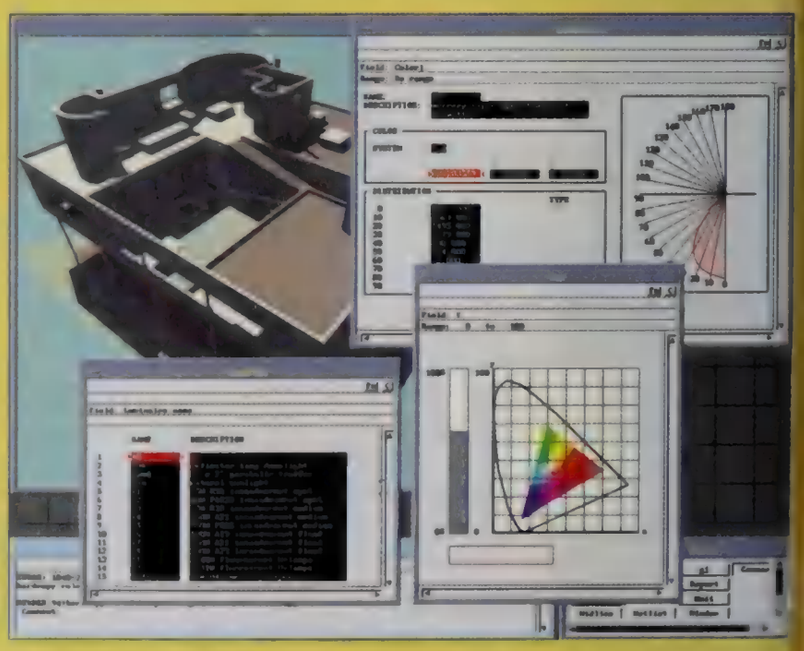
For this review, we took a good look at A&ES and at add-ons for interference detection, rendering (with textures, reflections, smooth shading, and shadows), hvac, lighting, and piping.

The graphics module is easy to draw with out of the box. Wall intersections drawn in plan clean up easily, for instance, and there's a good selection of drawing tools and entities optimized for architecture. You can easily display 3-D objects superimposed on 2-D views—to show office fittings superimposed in 3-D on a floor plan, for instance. This basic module also includes excellent database control and a good plot layout package, direct import of raster images—scanned drawings for facilities management, for instance—a text font editor, line style editor, hatch-pattern customizer, and so forth. You can even modify the interface for specific needs such as symbol control for facilities management or unusual drafting tasks.

Database features include SQL access, query by example (you fill in parts of data forms and the software finds matches), duplicate-record detection, and two-way exchange with ARCINFO GIS data files. You can link many data items to one object, or many objects to the same data.

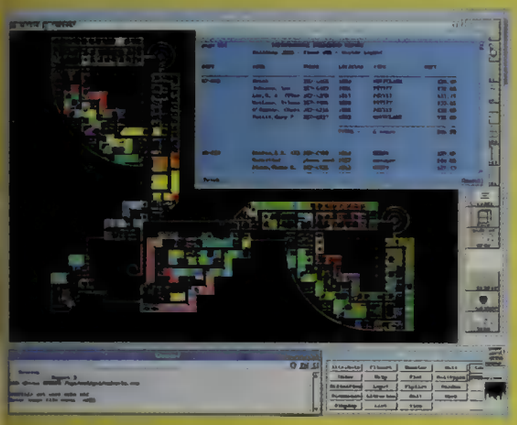


(left) can be applied to a surface (lower image from the add-on rendering module.



The lighting module in action; note the view of illumination patterns, control over colors, and database of fixtures.

Basic graphics module is used for a massing study; alternative building shapes for the constricted site can be considered in just a few minutes; even the shadows cast by the building can be shown.



You can have different tolerances in different layers, groups, and so forth. The basic graphics module comes with a library of 4,000 architectural and landscape symbols; you can view them on-screen to select. They are all 3-D, but can be viewed in 2-D (in plan or elevation). The system can handle an unlimited number of libraries of unlimited size.

The handling of symbols is amazingly flexible. You can, for instance, put any amount of text on a symbol to store data without having the data in the definition of an entity's attribute. Database links are to Oracle, Ingres, and Informix.

The add-on modules from IBM and third-party vendors include:

- *Structural.* Covers design and analysis of residential or commercial buildings, including high-rise structures.
- *Interference detection.* Includes not only "hard" interferences (pipes colliding with beams), but also soft ones—inadequate clearances for maintenance, for instance.
- *Lighting.* Meant mainly for interiors; includes links to IES (Illuminating Engineering Society) files.
- *Energy.* Links to Department of Energy public-domain energy-analysis software.
- *Hvac.* There are two sections; one handles load calculations and the other draws ducts. Walls can be given different U values for winter and summer; in fact, they can be built up of layers, each with its own thickness, U value, and other properties. You can match the data against expected weather.
- *Piping.* Includes plumbing for commercial and residential structures for 17 systems (chilled water, sanitary, and so forth).
- *Facilities management.* Remarkably flexible; it can even allow people from different departments to share one office space and keep everything tracked. Cadtech was the developer.
- *Electrical layout.* Mainly for locating service on walls, not for minimizing cable runs.
- DXF and IGES translators. A module for walkthroughs is expected as well.

We recommend plenty of fixed disk space beyond the minimum 400MB suggested by IBM. A&ES supports unlimited layers in a drawing, essentially by storing each layer in a separate file.

Corporate architects (and offices that have to deal with them for everything from tenant fitups to retail store fittings) should find A&ES particularly attractive; it handles facilities-management and other data-intensive chores well. Planners will find the GIS links useful, too. *Circle number* **300**

IBM Architecture & Engineering Series Summary

Equipment required: IBM RISC System/6000, 400MB disk space (more for a stand-alone system), 16MB random-access memory (32MB recommended), AIX (IBM's version of UNIX). Or, you can use an equivalent workstation from Hewlett-Packard. X-Windows interface and mouse strongly recommended.
Vendor: International Business Machines Corporation, 472 Wheelers Farm Rd., Milford, Conn. 06460, 800/IBM-4AES. The Graphics module licensing fee is $5,195; media are extra; includes free upgrades within version and free unlimited support. Advanced rendering is also $5,195. Other modules range in price from $1,250 to $12,000.
Manuals: We took a good look at the reference manual for the base graphics package. The giant looseleaf was well done.
Ease-of-use: Excellent on a fast machine.
Error-trapping: Excellent; the full range of UNIX data-recovery tools is available. ■

DGNLink Aids CAD File Translation

As those who have had to translate files from one CAD system to another know, the process is somewhat of a black art. In fact, high-volume translation chores are often contracted out to service bureaus. Decision Graphics, Inc. (DGI) has long had part of the solution for do-it-yourselfers: Software for importing MicroStation files directly into AutoCAD.

Now DGI has upgraded its package to work within AutoCAD Release 12 as an ADS application. And there's now a module available for exporting the file back to MicroStation (also from within AutoCAD). Finally, DGI has released a version that allows importing MicroStation DGN files into Cadvance for Windows.

The key to file translation that works for you is control over how various entities—fonts, complex curves, colors, and so forth—are translated. DGNLink allows you to set up the translation defaults, then let relatively unsophisticated users simply import (and, for AutoCAD, export) files using the CAD program's menu system.

The translations can never be perfect because each system has some entity definitions the other doesn't. But they are a lot better than you'd usually get by using DXF as an intermediate file. *Circle number* **301**

DGNLink Summary

Equipment required: Any computer powerful enough to run AutoCAD Release 12 for DOS or Cadvance 5.0 for Windows.
Vendor: Decision Graphics, Inc., 210-C Exchange Place, Huntsville, Ala. 35806, 205/837-7710, 800-352-7859, fax 205/837-7712. $395 for MicroStation to AutoCAD, $395 for AutoCAD to MicroStation, $695 for both. $695 for module to import into Cadvance. Additional seats are at half price.
Manuals: Simple, straightforward for AutoCAD. We did not see a manual for the Cadvance version—and didn't need one.
Ease-of-use: Simple. Menu-driven from within AutoCAD, once you install it.
Error-trapping: It is theoretically possible but highly unlikely to overwrite an IGES DGN file with a DWG file, and vice versa, if you are using other utilities that allow mindless changing of filename extensions. ■

Adding Up

David Whitcomb photos



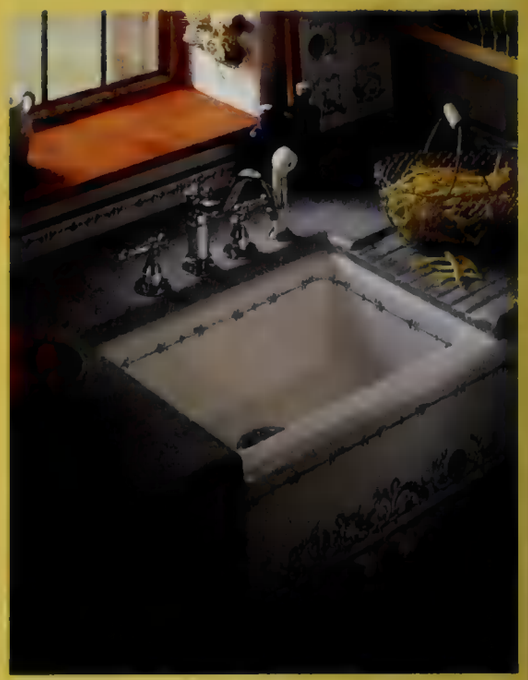




302. After Thomas Seiler returned to his native Baltimore to practice architecture, he became adept at translating specific site and client requirements into mathematically proportioned furniture. Basing his constructions on a harmony he found in a 16th-century [illegible] progression called the Fibonacci [illegible] proportional relationship [illegible] extensions of an element—[illegible] piece of furniture within [illegible] elements making up [illegible] the table should be, [illegible] would have. He uses construction materials—metal, concrete, wood, and slate—to fashion his sculpture and tables into metaphorical buildings. A low table (top) has a black-walnut surface resting on three open boxes of ebonized plywood; mahogany drawers are accessible from two sides. Hall tables (below) stand 38-in. high; a black-walnut top rests on three precisely proportioned open boxes of hand-brushed aluminum, and a slate top sits on steel pins set in three mahogany bars within a solid volume of ebonized plywood. Thomas K. Seiler Architect, Baltimore. ■

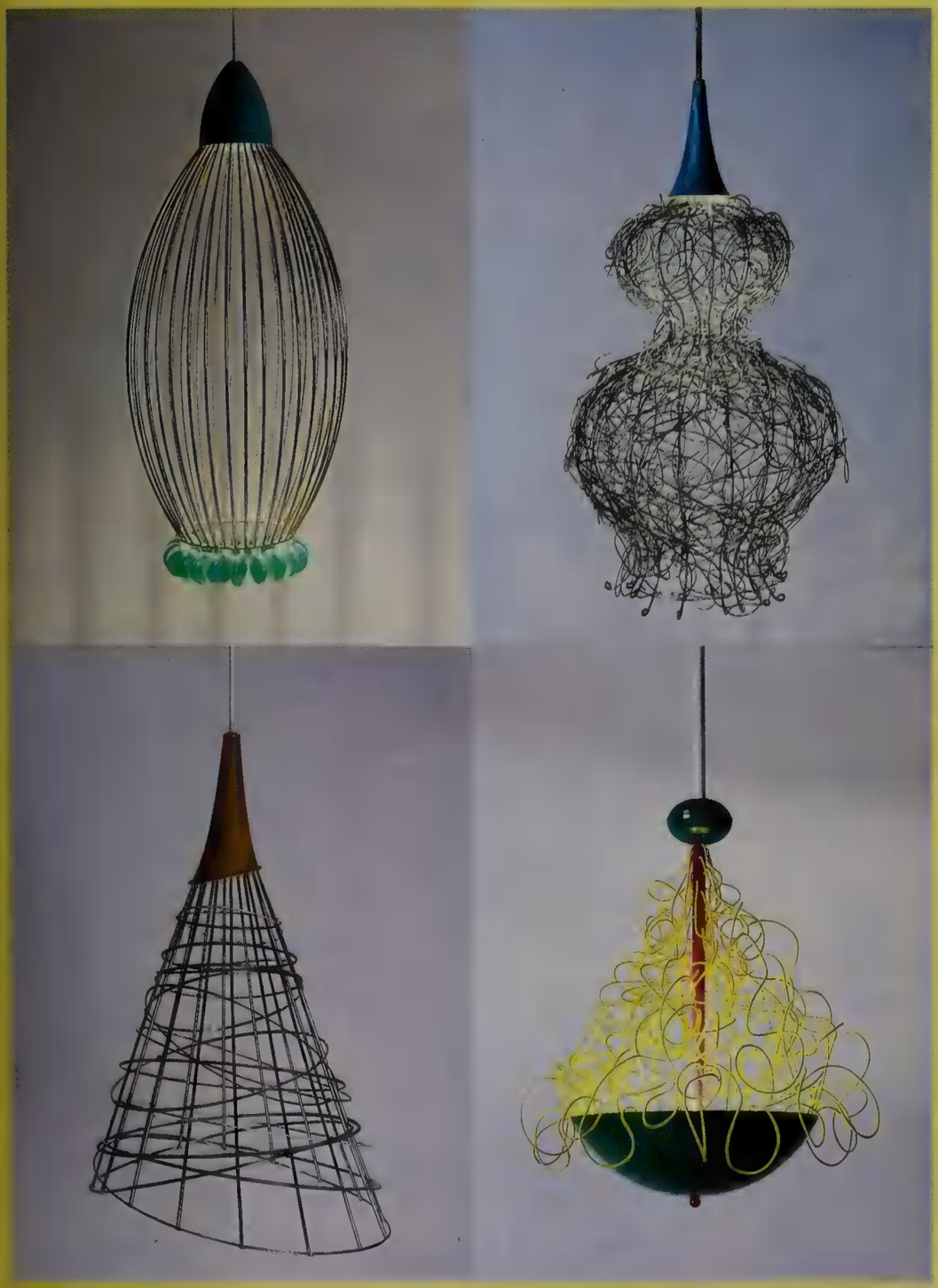
Aproned Sinks

303. Kohler has expanded its Artist Editions line of decorated plumbingware from the bath into the kitchen with new sinks featuring an extended front apron. More-luxurious versions of the sink Mister Hudson polished silver at in *Upstairs Downstairs*, the models have a bas-relief pattern molded into the fireclay material. Aviary (below) has a Delft-like pattern of birds, leaves, and fruit in deep blue and persimmon colors; Interlace (bottom) is a floral in solid white or biscuit glaze. Matching ceramic tiles can coordinate the installation. Kohler Co., Kohler, Wis. ■





Wire Work



304. One-half of the talented designer/maker team Godley-Schwan, Lynn Godley creates lighting constructions that have progressed from small table-top lamps to generously scaled—and very decorative—pendants. Her newest pieces use a lot of colorful tinted and lacquered wire, illuminated by white light from standard-base halogen bulbs. Luminaires are about 24-in. high by 16-in. wide, and should work well in large residential spaces as well as lobbies and reception areas. Shown clockwise from top left: Birdcage, the Body Lamp, Dome, and Basket. Godley-Schwan, Brooklyn, N. Y. ■

For more Lighting products, see separate Lighting Supplement

Au Naturel

305. Made pretty much by hand in downtown Milwaukee, the La Lune Collection offers an extensive range—over 600 designs—of furniture and casegoods in a rustic, natural-wood style reminiscent of Andrew Jackson Downing. The 14-year-old firm has placed product in the homes of celebrities such as Ralph Lauren, Eddie Murphy, and George Lucas, as well as in restaurants, hotels, and stores like The Limited and Eddie Bauer. Designer Mario Costantini has a unique take on the use of wood in furniture construction, working with fast-growing, "environmentally secure" American woods like willow, white birch, and aspen and incorporating many limbs and branches cut without permanently damaging the tree itself. Materials, water-based finishes, and hand-done construction details allow many pieces to be used outdoors as well. These new chairs are representative of the curvilinear and rectilinear shapes prominent in the collection. Beds, armoires, settees, dining and side tables, and accessories are also available. Trade prices start at about $345, for the armless chair. La Lune, Milwaukee. ■





Critical Positions

ANY, *edited by Cynthia Davidson. New York: six times a year, subscription $45, single copies $10.*
Appendx, *edited by Darrell W. Fields, Kevin L. Fuller, Milton S. F. Curry. Cambridge: two times a years, subscription $28, $45 (institutions).*
Assemblage, *edited by K. Michael Hays, Catherine Ingraham, Alicia Kennedy. Cambridge: three times a year, subscription $60 (individuals), $35 (students).*

Reviewed by Scott Gutterman

Architectural journals usually try to foster criticism that is "cutting edge," a designation that too often winds up meaning convoluted and obtuse. For publications that hope to promote social change—another common aim—such twisted language is a fatal flaw. When the lofty ambitions for these journals are not borne out in their execution, they are bound to be read only in graduate-school libraries and seminar rooms—if at all.

The three journals reviewed here run the gamut from provocative and engaging to needlessly obscure. The most successful of the lot is *ANY*, the publication started by architectural gadfly Peter Eisenman and his wife Cynthia Davidson to promote discussion on, oh, any number of issues.

The July/August 1993 issue of *ANY* is entitled "Seaside and the Real World: A Debate on American Urbanism." Contrary to most events that bill themselves in this fashion, it truly does generate heated, intelligent debate. The principal architects behind the revolutionary (or is it reactionary?) Florida development, Andres Duany and Elizabeth Plater-Zyberk, staunchly defend their approach in the face of formidable opposition, including Neil Smith, Mark Linder, and most pointedly, Eisenman himself.

Everyone agrees that Seaside is a popular success, but no one can decide whether or not that is a good thing. Eisenman calls the [illegible] paradigm of retrenchment." [illegible] back, "What critical [illegible] to the new

[illegible] *who*

Deconstructive buildings: the advertising agency interiors, the expensive houses, the pasta palaces?" Whichever position one embraces, this journal more than fulfills its role of provocateur by embodying a vintage Modernist principle: question everything.

More problematic, though promising, is *Appendx*, a journal devoted to African-American architects and the perplexing questions they face. Here language and its usage is very much an issue under review—notably the tension between the "white" language of academic writing and "black" vernacular speech. By showing up the profound differences between the two, the editors of this journal point to the seemingly unbridgable gap between high theory and lived experience. But far too often, they fall headlong into the gap. On the one hand, it is bracing to hear Milton S. F. Curry say in his essay "Emancipation Theory," that "I found prominent black architects in particular actually mocking theory, and demarcating it as an exclusively white terrain and the site of elite rhetoric." On the other, it is disheartening to read in Kevin Fuller's essay "Negative Affirmation" a particularly turgid analysis of an eloquent passage from Ralph Ellison's *Invisible Man*. Clearly, it is beyond the scope of any journal to resolve all such disjunctions and *Appendx* should be applauded for bringing questions of race and class to bear on the field of architecture.

Of the three journals, *Assemblage* drifts the farthest into the realm of nonsensical babble. To compile issue number 20, guest editor Mark Wigley invited artists and critics to respond to the words: "VIOLENCE SPACE." For the most part, the responses he received bear little relation to architecture, to say nothing of coherent thought. Of course, these contributions (Wigley calls them "interventions") are meant to dislocate, to challenge the dominant discourse, to map alternative strategies (all favorite catch-phrases). Yet, as with the most insufferable avant-garde endeavors, they are far too smug in their insularity to alter almost anyone's thinking about anything. One contributor—make that interventionist—concludes a quasi-poem written in Scottish dialect with the line, "git a grip." Truer words were never spoken. ■

Briefly Noted

The New Finnish Architecture, *by Scott Poole. New York: Rizzoli, 1992, 224 pages, $50 (hard), $35 (paper).*
An excellent introduction to what is being designed in Finland today and why it's being done that way, this book starts with essays by Poole and Colin St. John Wilson, and then shows the work of 13 architects—including Juha Leiviskä (whose Mannisto Church is in this issue of RECORD, page 038). St. John Wilson aptly summarizes Finnish architects' special relationship with Modernism: "... for Finnish architects the Modern movement is not only an unchallengeable foundation for an evolving architecture, but has, during the last 65 years, established an ample tradition." *C. A. P.*

Calatrava Bridges, *by Kenneth Frampton, Anthony C. Webster, and Anthony Tischhauser. Zurich: Artemis, 1993, 224 pages, $95.*
Like the bridges of Santiago Calatrava, this book has a lean and elegant design that allows it to cover a lot of ground with a minimum of fuss. Each of the 16 bridges in the book is well represented in photographs, drawings, and text. Essays by Frampton and Webster help place Calatrava's bridges in context with the rest of the architect-engineer's body of work and the history of bridge building.

Design, Form, and Chaos, *by Paul Rand. New Haven: Yale, 1993, 232 pages, $45.*
From the man who gave you the IBM logo, as well as graphics for NeXT computers and The Limited, comes a strikingly designed book that looks at topics such as the values behind esthetics, the role of intuition in good design, the place of market research, and how to use computers. The book's mix of short texts and smart graphics is just right.

Michelangelo: Architect, *by Giulio Carlo Argan and Bruno Contardi. New York: Abrams, 1993, 388 pages, $125.*
Although he often complained that architecture was forced on him by wealthy patrons, Michelangelo brought the same restless spirit of innovation to buildings as he did to sculpture and painting. This book offers essays and detailed chronologies of 31 architectural projects, as well as a rich set of photographs and drawings.

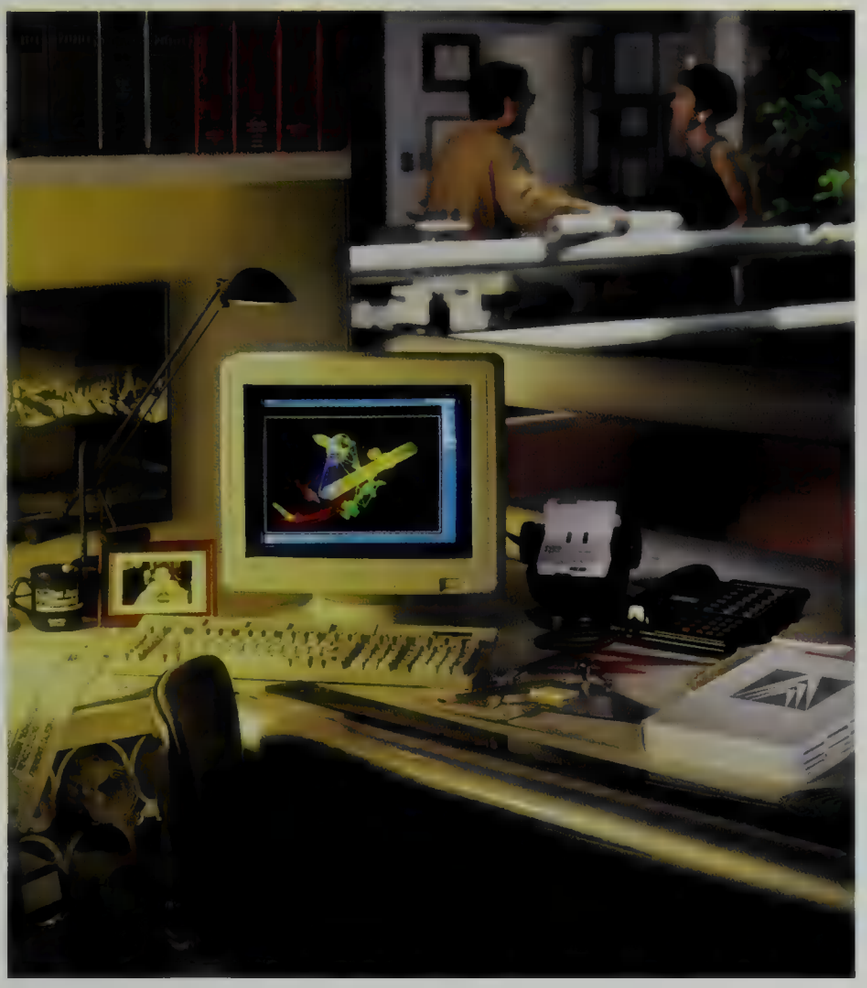
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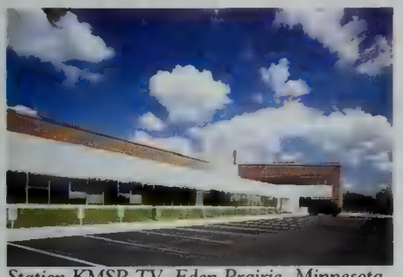
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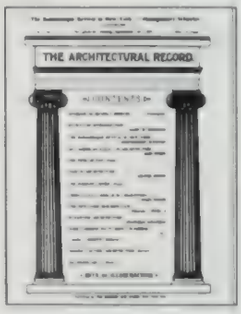


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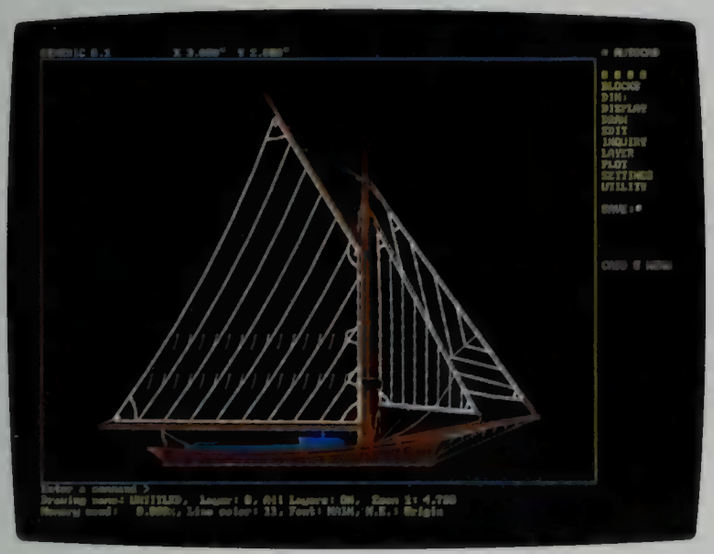
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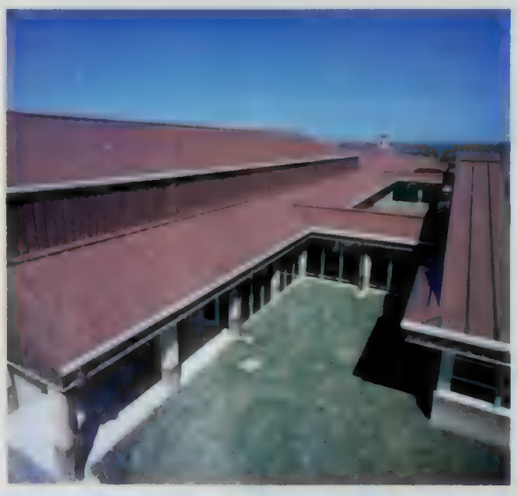
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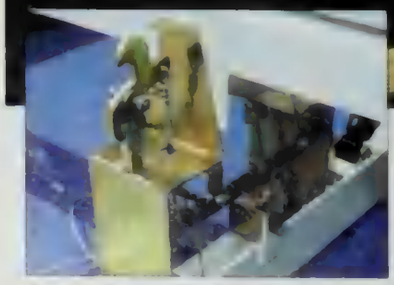
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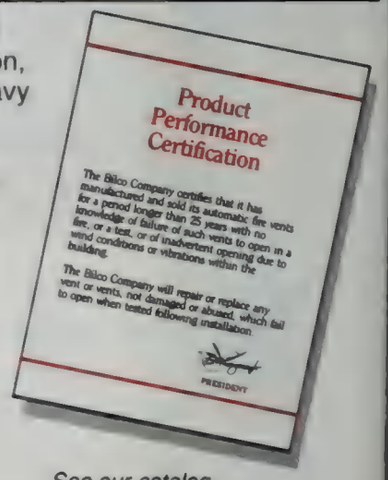
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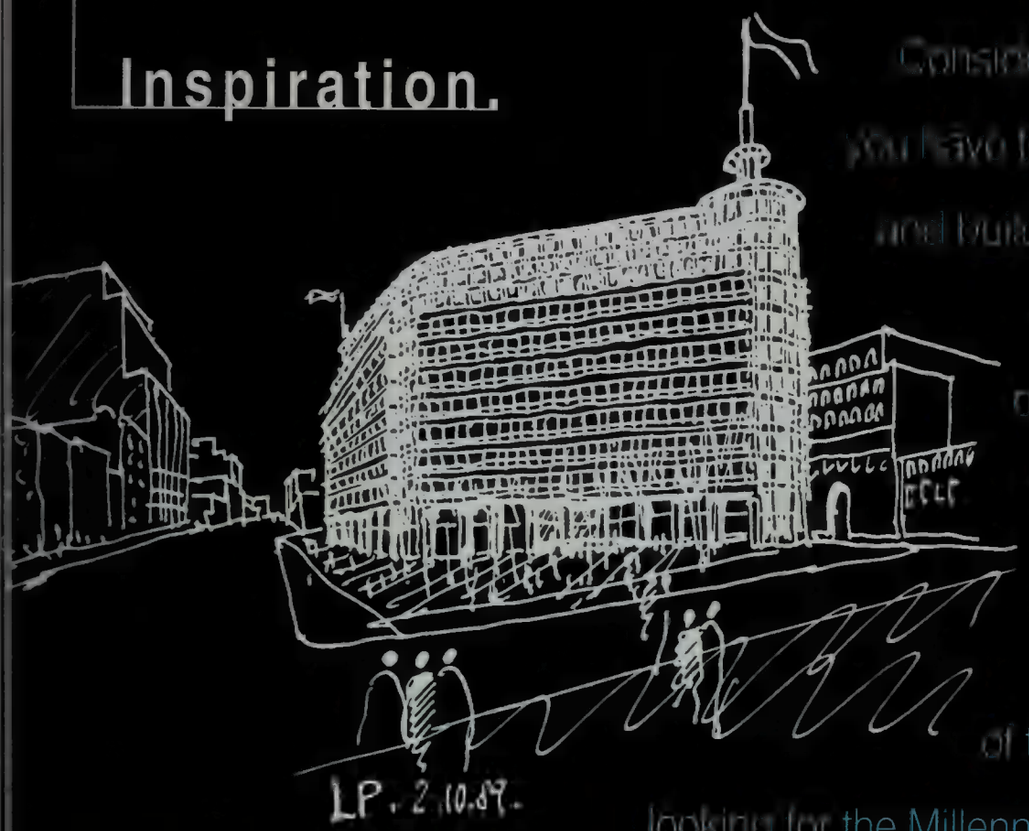
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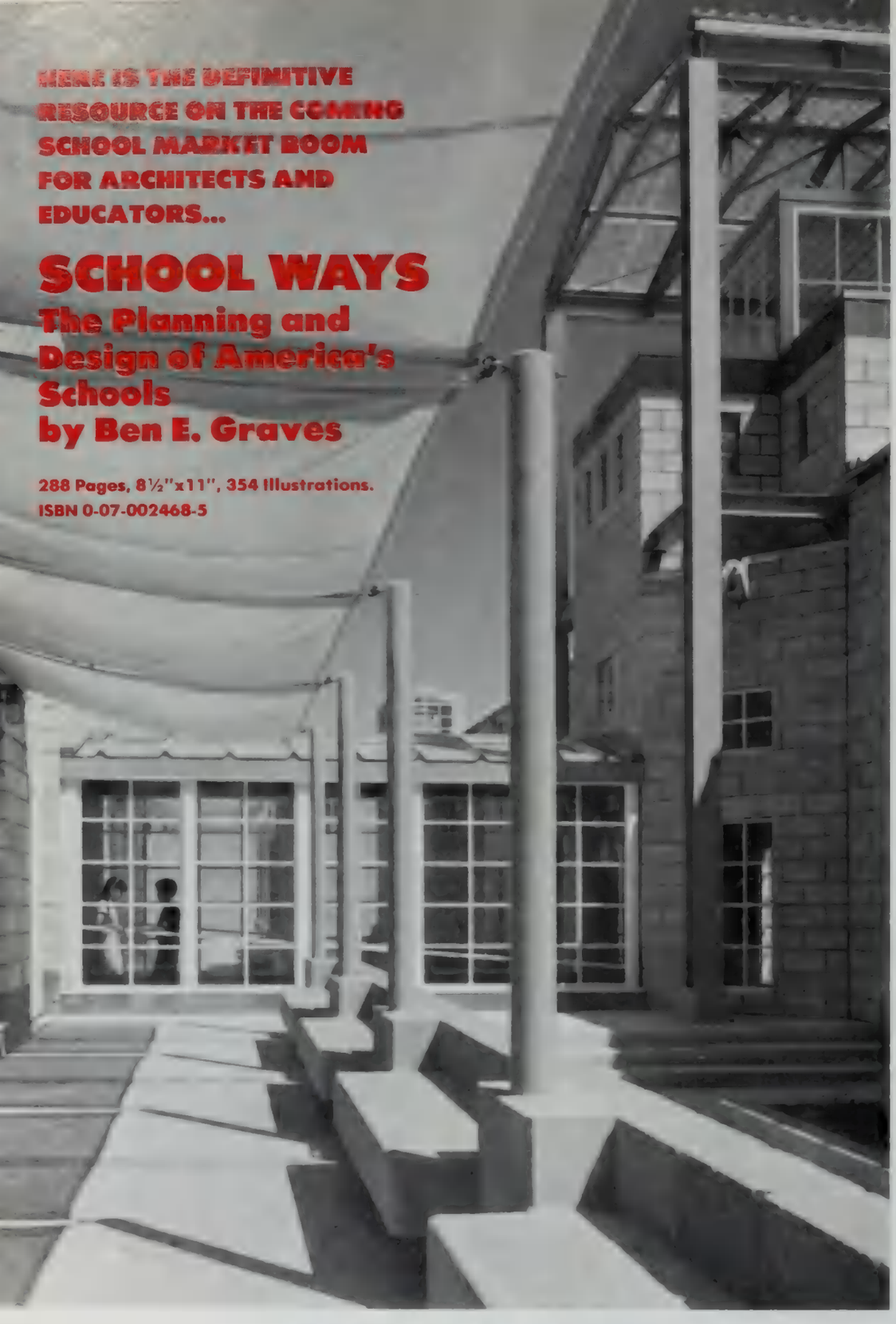


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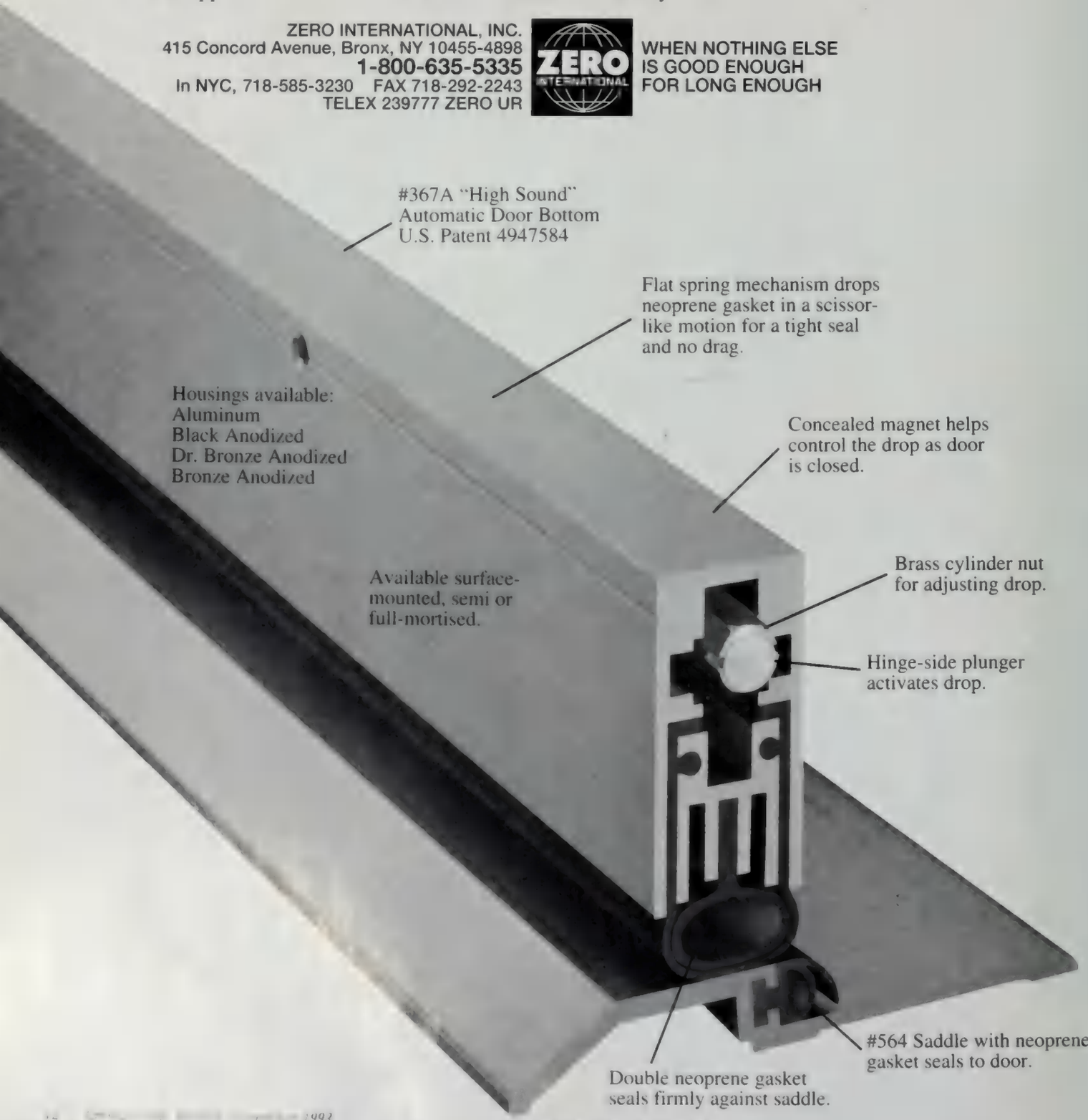
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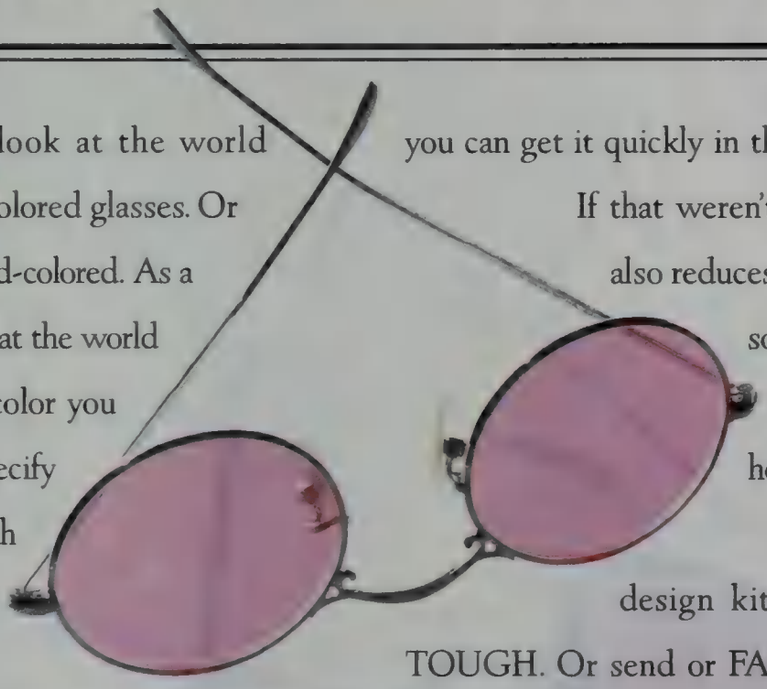
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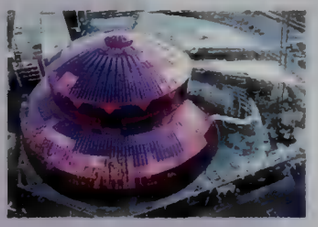
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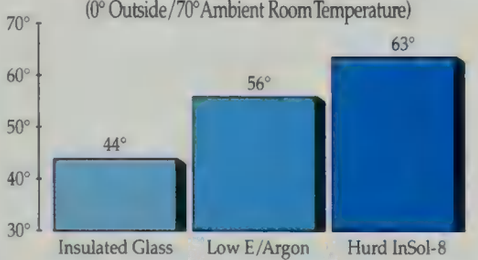
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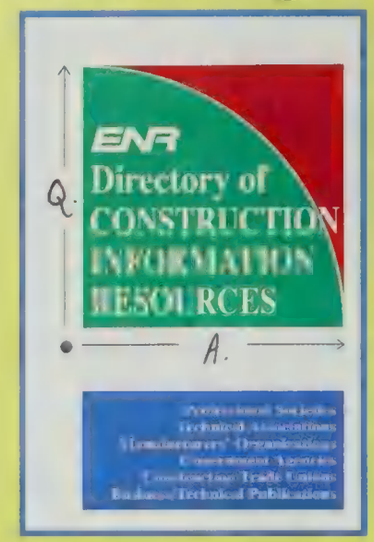
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In This Issue

"Perhaps the best of the group—not as a summation or stopping point, but in richness of conception and satisfying composition," writes correspondent Gerald Moorhead of Finnish architect Juha Leiviskä's most recent church (page 86). The same can be said of Becton Dickinson Building 2, the latest addition to a three-phase office park scheme by Boston firm Kallmann McKinnell & Wood (page 80). Client Becton Dickinson wanted a corporate headquarters that would meld with the rural landscape, in part so it would find acceptance in a New Jersey community hostile to commercial intrusion. The principal goal of Cannon PTN Architects in its design of St. Charles County Community College in St. Peters, Missouri (page 92), was also community-minded: to create a sense of cohesion to counteract the current notion of such institutions, which editor Cliff Pearson characterizes as "the pedagogical equivalents of strip shopping centers." For Tod Williams Billie Tsien & Associates, the challenge was to imbue a new residential college at the outskirts of the University of Virginia's now sprawling campus with its own identity, while acknowledging the clarity of vision and purpose established by University founder and original architect Thomas Jefferson (page 98). A sense of community and identity are themes familiar to Richard Dattner and Stanley Saitowitz and landscape architect Michael Van Valkenburgh, whose work is featured in Building Types Study 711 on Parks and Recreational Facilities (page 108). *K. D. S.*

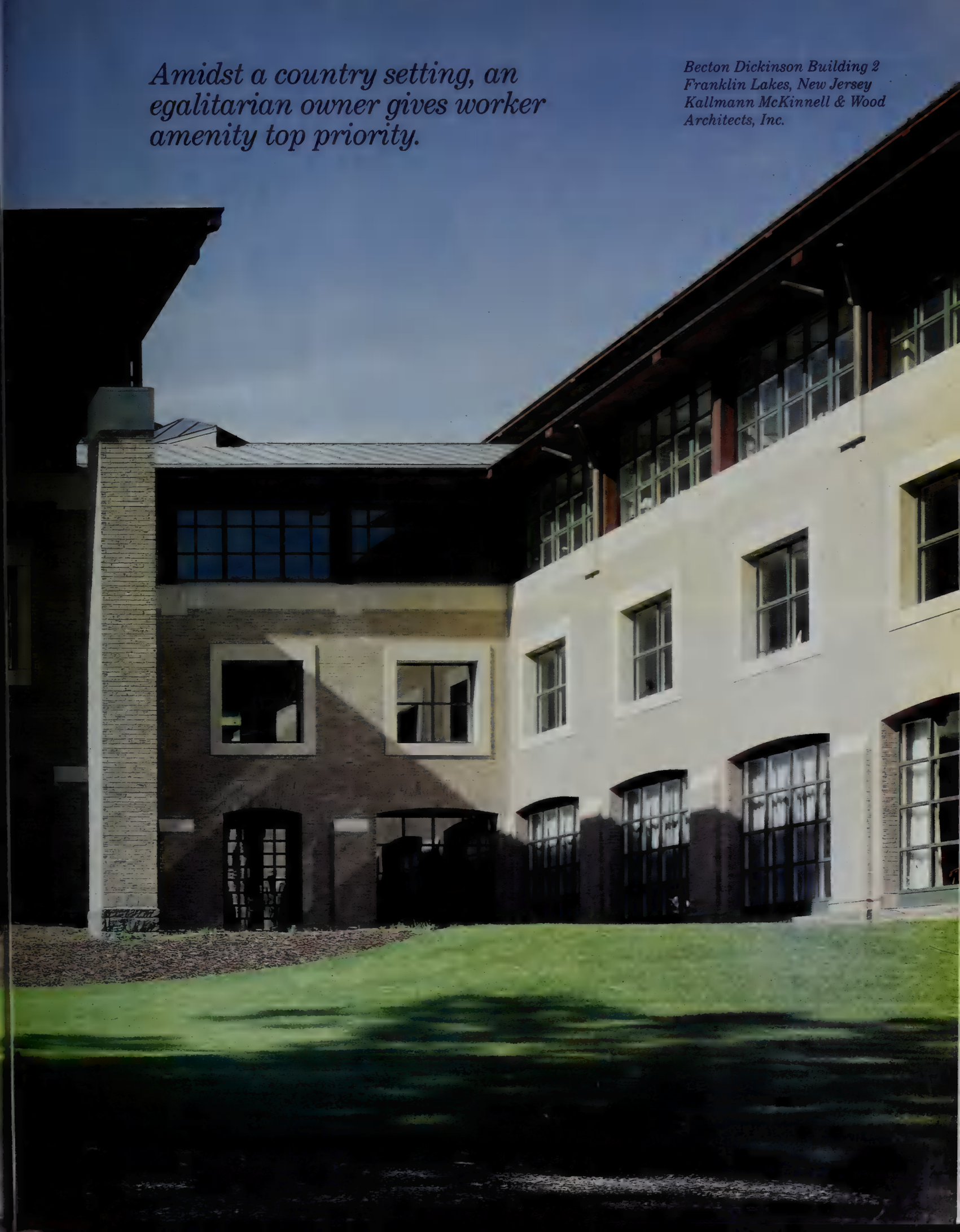
Manufacturers' Sources
isted on page 125

Rooms With a View



Amidst a country setting, an egalitarian owner gives worker amenity top priority.

Becton Dickinson Building 2
Franklin Lakes, New Jersey
Kallmann McKinnell & Wood Architects, Inc.



As a company, Becton Dickinson is nothing if not democratic. Blessed with a sumptuous rolling 14-acre site, the architects for this manufacturer of high-volume medical devices have succeeded in giving every worker adjacency, or at least a view of, nature. In contrast to the first Becton Dickinson building [RECORD, January 1988] located on the same site, and similar to it in superficial ways, Building 2 has no doors on any enclosed office except for a small handful of top executives, thereby opening up the view for support staff at the workstation-equipped cores of the finger plans.

Moreover, whereas Building 1 is the corporate headquarters and staffed by the suit-and-tie crowd, Building 2 serves as headquarters for an operating division, and is less encumbered by dignity. Separated from Building 1 by a sloping lush green lawn and edged by honeylocusts, Building 2 is more plebeian, livelier, freer, more open, colorful, and workmanlike. Walls bear paintings and mounted photographs in vivid colors. Niches and atria carry large figurative sculptures, and the central atrium is dominated by a 34-foot multicolor Japanese sculpture intended in part to raise consciousness about Japan as a competitor (the sculpture, not shown, is not universally liked.)

The four-level building is organized around three north-facing fingers, each with a full-height atrium that also acts as an exhaust plenum for the hvac system. The eastern-most atrium is a breakout space for surrounding classrooms, and is likewise used by large groups for special gatherings. At the same end, a health center, cafeteria, notions store, and fitness center accommodate the needs of a fairly isolated workplace. The two parking structures are designed on the basis of one space per employee.

The division is a line operation and profit center, and incorporates 100,000 square feet of laboratories. The lowest level houses the so-called pilot-line function, where engineers develop the manufacturing equipment which, in offsite plants, produces the company's products. The level also contains a computer room, building transformer, and switchgear rooms, and kitchen support spaces. On level 2, product—design labs are housed in the core of the middle finger. While the exhaust fumes are not toxic, the variable air volume hvac system provides for a 100 percent air change, with separate exhaust stacks leading from each lab, providing flexibility for any future conversion. Perimeter offices are able to keep maximum ceiling height through a system that feeds and exhausts air horizontally directly from distribution ducts in corridors.

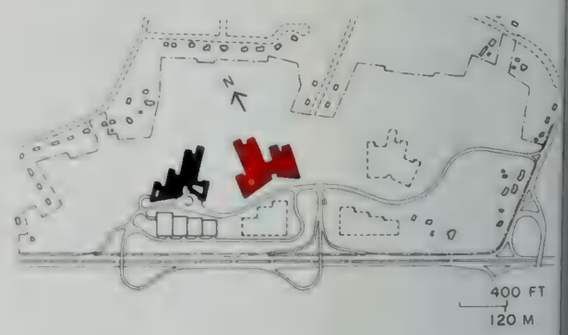
In a move that is still the exception for the delivery of buildings of this stature and scope, the owner held the contracts directly with some 40 trade subcontractors, in effect acting as its own general contractor, according to Ronald Freschi, project manager for corporate engineering and facilities planning at Becton Dickinson. An independent construction manager was hired as an extension of Freschi's staff, chiefly to provide field supervision.

Unpretentious but dignified, part of the land and not imposed upon it, and flexible to accommodate change, the Becton Dickinson buildings [illegible] no style or time, and will flourish as congenial [illegible] long beyond the lifespans of their creators.

Up Close

Workplace for the common man. Nothing better reflects the architects' intent than an excerpt from five-year-old Harvard Graduate School of Design lecture notes which Gerhard Kallmann and Michael McKinnell used to define their parti: "Whilst there is that thread of continuity, we have resisted the safe haven of a rigid ideological stance and have stayed away from the tides of fashion and trendiness, and have jealously guarded our freedom of action against the dogma of an avant-garde or the pundits." The simple steel framing, copper roof, cedar wood and beige brick facing, when combined with wide hallways with glazed ends, (expressed through the rounded vertical elements (opposite top) that provide daylight and views, all make for lightness and transparency. They deliver the kind of relaxed environment that was the owner's underlying goal. "We wanted a building that's handsome to walk through," McKinnell told RECORD. "We didn't want an object standing in a lovely park; we wanted the buildings to meld into the landscape."

The key shift in focus from Building 1 to Building 2 is in the added concern for employees of all ranks. No office except the top executives' has doors; instead, there's a six-foot opening to each office which reveals the view to those at the interior workstations.



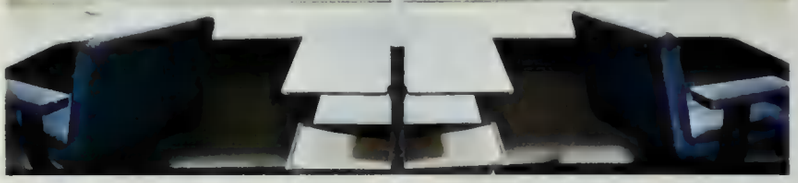
Building 2 (shown above in color) was completed about five years after Building 1. Each is supported by a parking garage, designed on the basis of one space per employee. There are no present plans to erect the third building. Exterior differences between the first and second buildings are subtle, and lie mainly in the use of square limestone-trimmed windows in lieu of vertical windows. Materials are limestone and a beige brick from Ohio over a steel frame, a copper roof, and an occasional use of cedar to finish off the tops of columns and the overhang supports in the atria. Flooring inside and out is a gray Burlington stone from the north of England.

Steve Rosenthal photos











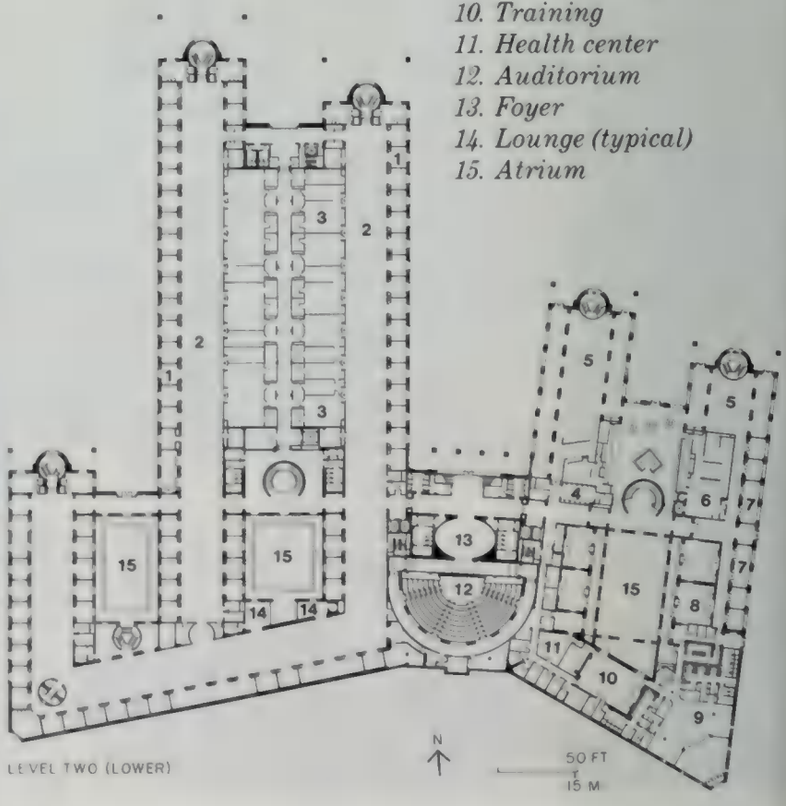


The openness of the design is evident in the view from one office across an atrium to a corresponding office on the other side (top left.) For privacy, there are a few small enclosed conference rooms; these cut off sound but don't interfere with the luminous, open quality of the building (middle left). Perched on a patterned carpet and lit by indirect ambient lighting, the center finger is given over to workstations. Each position affords a view to the outside through perimeter offices, one of which can be seen near the right edge of the picture (bottom left).

Credits

Becton Dickinson
Building 2
Franklin Lakes, New Jersey
Owner: *Becton Dickinson and Company*
Architect: *Kallmann McKinnell & Wood Architects, Inc.—N. M. McKinnell, Gerhard M. Kallmann, Henry A. Wood, partners-in-charge; S. Fiske Crowell, Jr., Bruce Wood, Hans Huber, project team*
Engineers: *Zaldanstani Associates, Inc. (structural), Cosentini Associates (mechanical), Andrew Marshall, Jr. (civil)*
Consultants: *Stephanie Mallis, Inc. (interiors); Fisher Marantz Renfro Stone (lighting), Todisco Associates, Inc. (specifications)*
Landscape Architect: *Morgan Wheelock, Inc.; Landscape designer for north court: Michael Singer*
General Contractor: *Becton Dickinson Department of Corporate Engineering and Facilities Planning—Donald P. Sposato (vice president, director of operations), Ronald G. Freschi (project manager), Greg Butler (project manager, laboratories)*
Construction Manager: *Henderson Corporation*

1. *Perimeter offices*
2. *Open-plan offices*
3. *Labs*
4. *Store*
5. *Cafeteria*
6. *Kitchen*
7. *Private dining*
8. *Classroom*
9. *Fitness center*
10. *Training*
11. *Health center*
12. *Auditorium*
13. *Foyer*
14. *Lounge (typical)*
15. *Atrium*







Ethereal Light

Männistö Church and Parish Center
Kuopio, Finland
Juha Leiviskä, Pekka Kivisalo, Architects

Finnish architectural historian Juhani Pallasman has called Juha Leiviskä's churches "the finest instruments of articulating light constructed in our time." The Männistö Church, situated on the outskirts of the central Finnish town of Kuopio, is perhaps the best of the group—not as a summation or stopping point, but in richness of conception and satisfying composition. Leiviskä's architecture is an independent personal expression, fully within the tradition of Finnish Modernism as consolidated by Alvar Aalto: concern for both nature and the man-made environment; use of daylight; simple use of materials; and knowledge of the vernacular traditions of the land.

Instead of following the town plan, which indicated a church in the center of the sloping site, Leiviskä placed the church, parish facilities, and future "leisure center" on the western edge, at the highest point. The dramatic massing of the church with its freestanding bell tower is the climax of the building and site forms acting together.

The structure of the Männistö Church is composed of de Stijl-like vertical planes of concrete wrapped in brick. The positioning and spacing of the panels, seemingly random and willful, are actually cooly calculated to control the entrance of daylight into the worship space. Precious though the northern light is, it is not allowed to enter directly. The assortment of panel widths and spacings reflects diffuse light throughout the sanctuary. Nuances of intensity emphasize the chancel area. The serenity found in the interior is quite unexpected, in contrast to the animated exterior.

The church illustrates some construction technology that is different from that used in the U. S. Despite Finland's cold climate and long, dark winters, problems with thermal expansion and contraction of materials are not as important as in warmer lands. Expansion joints are few and far between and vapor barriers are little used. Walls are solid sandwiches without cavities—in the case of the church, a core of poured-in-place concrete laminated with rigid insulation and a skin of brick. The most basic concern is to keep the warmth in. Windows and skylights are triple glazed. The large sloping lanterns on the east-facing walls of Männistö Church have a top surface of double-pane insulated glass and a large ventilated air cavity with a single pane of glass below.

Leiviskä has added two new themes to the Männistö Church. The first is an internal skew to the pews and rear wall of the sanctuary. Breaking with his typical orthogonal order, the angled pews bring people closer to the altar for a greater sense of community, and the non-parallel walls improve the acoustics. The second new theme is color. Leiviskä's architecture is typically built with a very limited set of materials—in this case, red brick, red floor tiles, and white walls of brick and plaster. He says that "because I have aspired to a situation where light plays in every different shade, powerful color effects have not come into the question. They would mutilate the space." So, instead of applying color directly to the walls, color appears mystically as reflected light. Working with artist Markku Pääkkönen, Leiviskä placed bands of exquisite clear, pale tones on the back sides of light-reflecting panels. The effect is as ethereal and elusive as the changing light. *Gerald Moorhead*

Arno De La Chapelle photos





The 114-foot-high bell tower is composed of two vertically cantilevered concrete slabs. Just above mid-height, a series of horizontal and vertical planes form a box to stabilize the two primary planes. Slender white ribs projecting from the red brick stiffen the upper part of the main tower panel.

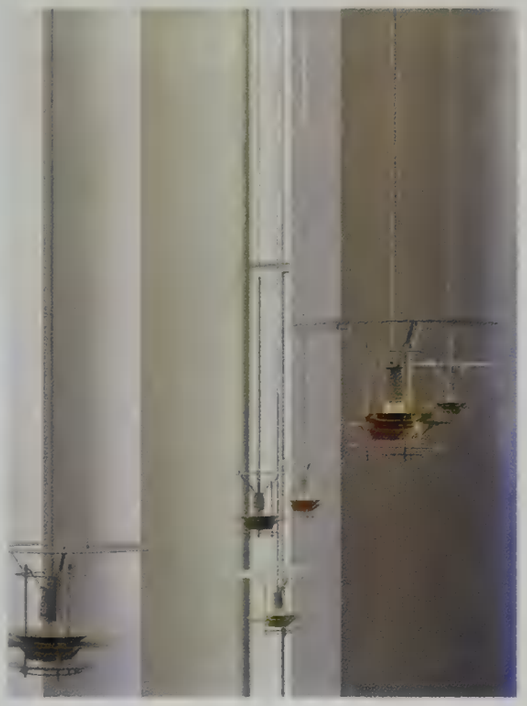
White-painted brick alternates with basic red brick to denote the sanctuary, and reflects the morning sun into the worship space through the glazing that separates the great vertical planes.



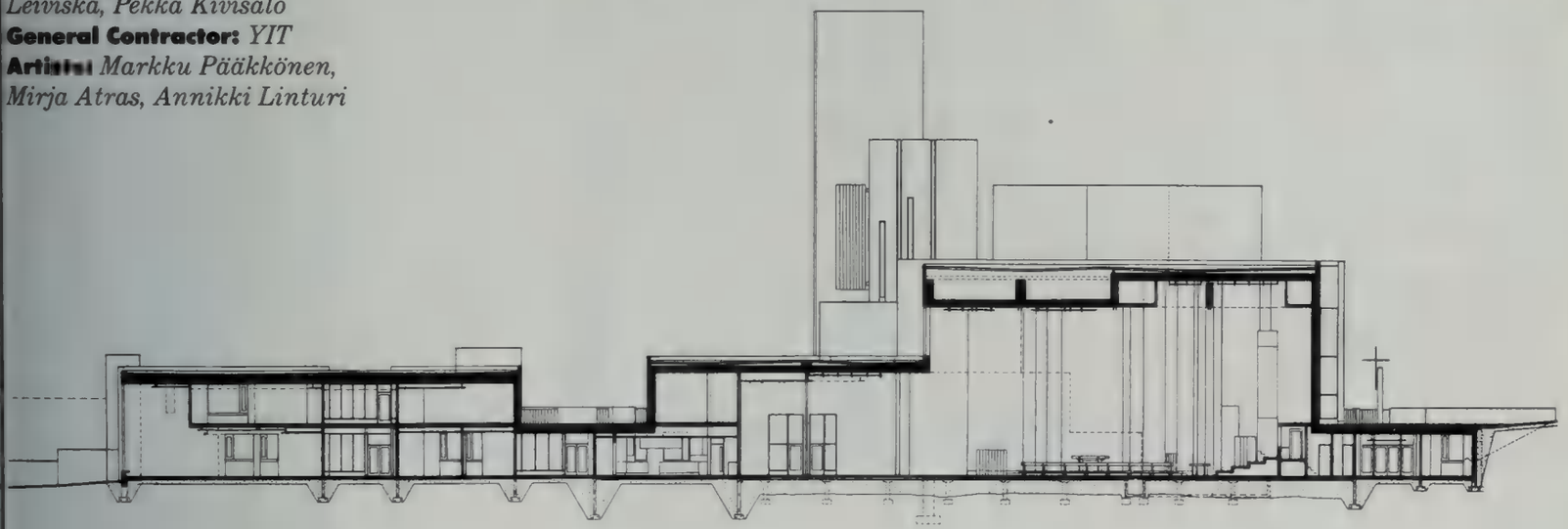


Light fixtures designed by the architect swarm through the church like hallowed angels. Leiviskä says that his "aim has been to achieve a lively dialog between large and small, open and closed, high and low, light and shade." The most important building material is daylight.

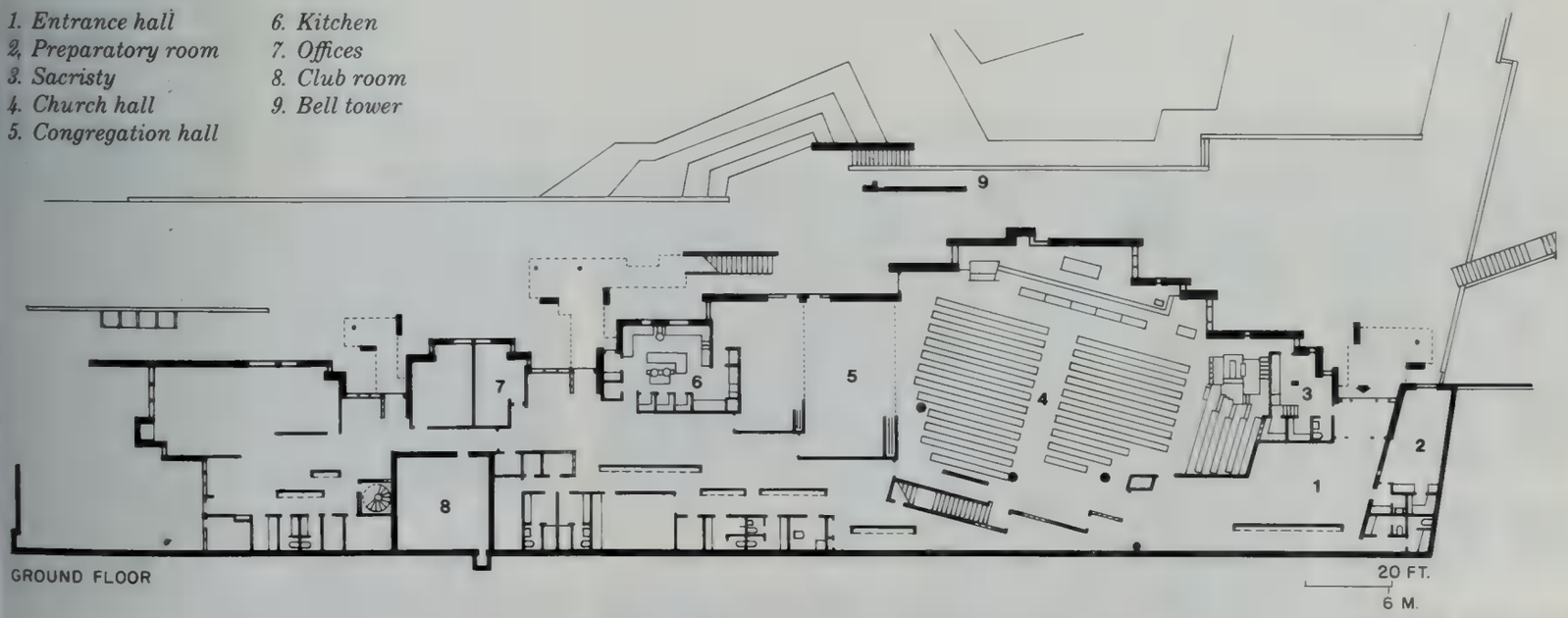




Credits
Männistö Church and Parish Center
Kuopio, Finland
Architect: *Juha Leiviskä, Pekka Kivisalo, Architects*
Engineers: *Harry Dunkel (structural); Markku Turikainen (mechanical); Erkki Pitkänen (electrical)*
Acoustics: *Alpo Halme*
Interior Design: *Juha Leiviskä, Pekka Kivisalo*
General Contractor: *YIT*
Artists: *Markku Pääkkönen, Mirja Atras, Annikki Linturi*



1. *Entrance hall*
2. *Preparatory room*
3. *Sacristy*
4. *Church hall*
5. *Congregation hall*
6. *Kitchen*
7. *Offices*
8. *Club room*
9. *Bell tower*

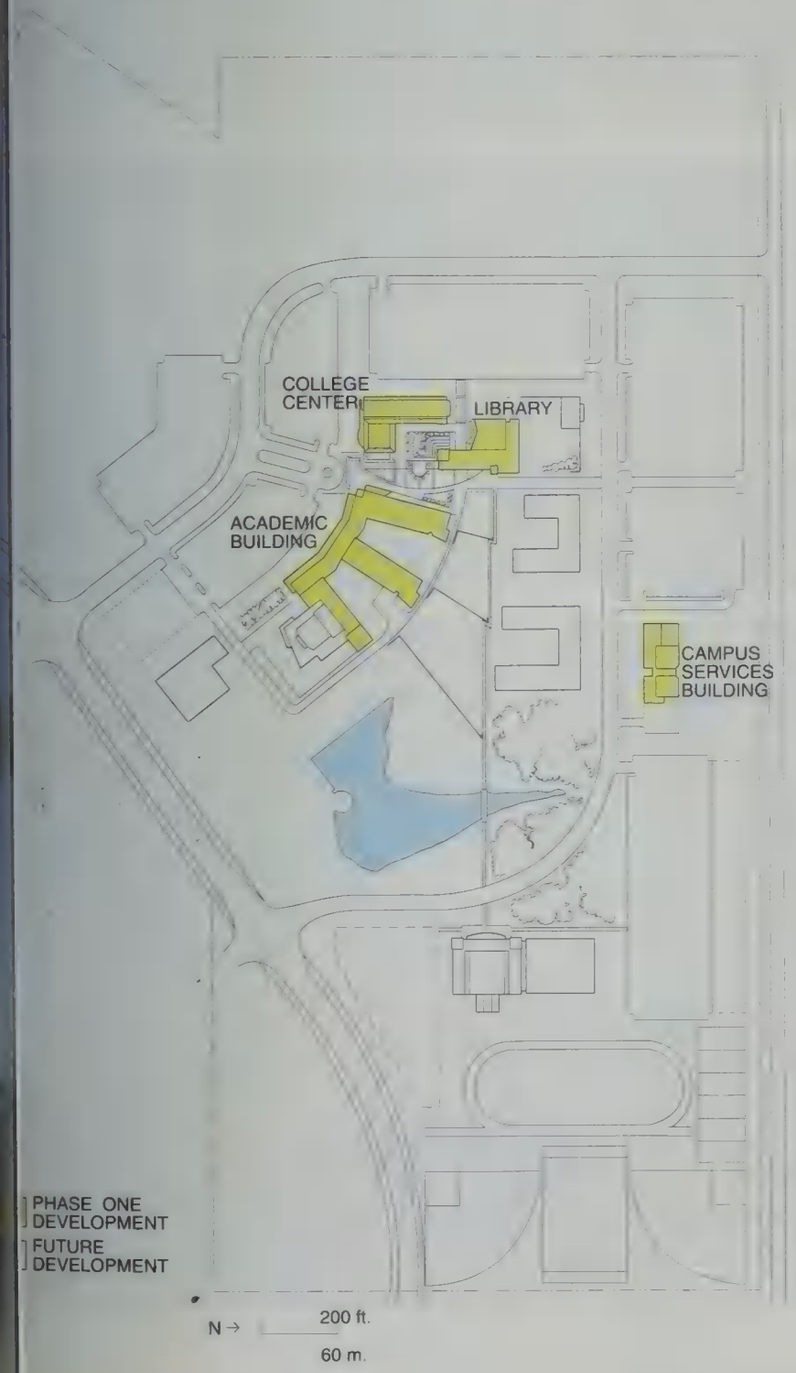


Community Action



St. Charles County Community College
St. Peters, Missouri
Cannon/Pearce Turner Nikolajevich, Architects

The academic building's stair tower (opposite) serves as a campus landmark. Set on 140 acres of former farmland (site plan below), the college's four buildings enclose 206,000 gross square feet of space—the academic building accounting for 112,000 square feet, the college center 37,000 square feet, the library 41,000 square feet, and the services building 16,000 square feet.



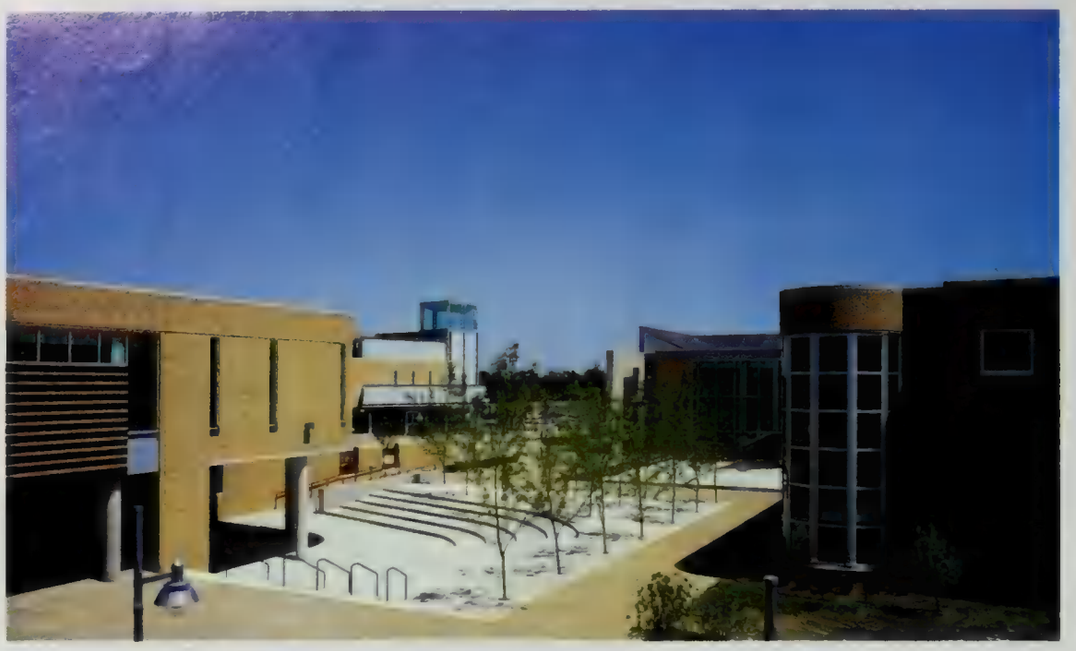
The problem with most community colleges is their remarkable lack of community. In their headlong effort to make higher education available to people with daytime jobs or other responsibilities, these institutions have become the pedagogical equivalents of strip shopping centers—emphasizing easy parking and short visits. Not surprisingly, they tend to *look* like shopping centers. St. Charles County Community College, a 4,200-student school in a rapidly growing suburban area outside of St. Louis, is a striking exception to this rule-of-thumb.

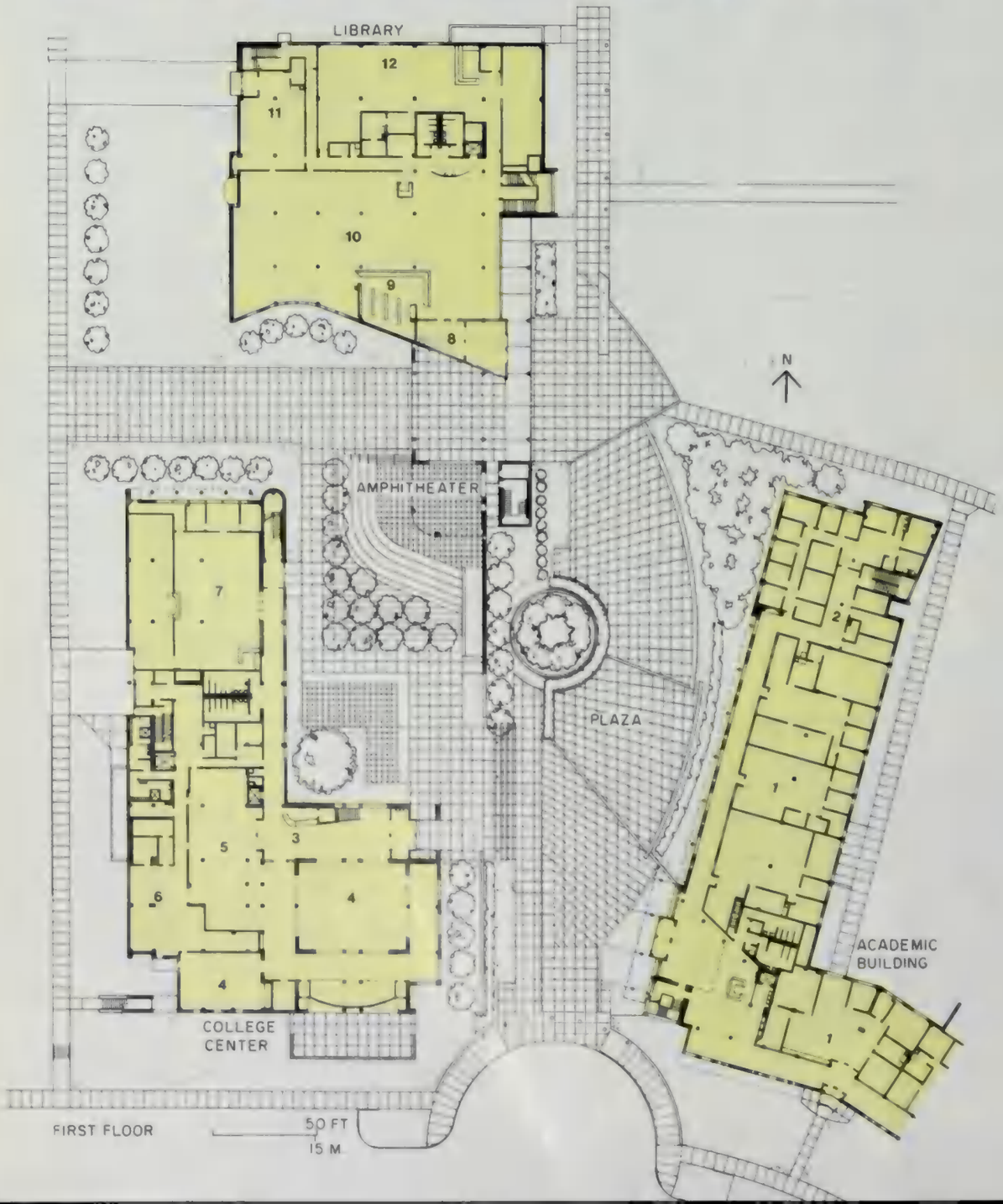
Without short-changing the special needs of students who commute (often more than once a day), Cannon/Pearce Turner Nikolajevich created a true campus out of 140 acres of farmland. One key to the school's success is its compact site plan. It clusters the first phase of buildings around a series of outdoor spaces that are more urban than rural in character. This strategy provides ample parking around the perimeter of the campus, while letting the main buildings look onto landscaped courtyards in the foreground and rolling hills beyond. "We had to create the sense of a campus with just a few buildings to start with," explains George Nikolajevich, the principal in charge of design. Packing the buildings together and consolidating many functions in a multi-fingered academic building helped form an efficient plan and prevented "the outdoor spaces from leaking out," says Nikolajevich. An admirer of Eliel Saarinen, Nikolajevich says he studied the way Saarinen manipulated spaces between buildings at Cranbrook Academy in Michigan.

Formerly located in scattered buildings in the town of St. Charles, the college now occupies three buildings on its new campus—an academic building with most classrooms and administrative offices, a college center that serves as a student union, and a library. A campus services building, just outside the campus perimeter, houses machinery that supplies power, heat, and air conditioning for the other buildings. Using steel-frame construction with brick, lightly tinted glass, and translucent wall panels, the architects designed 206,000 square feet of space within a tight construction budget of $18 million. While many other community colleges consist mainly of two-story "pancake" buildings, Nikolajevich and his associates worked hard to add height to both interiors and exteriors at St. Charles. As a result, the academic building is three stories with a skylit spine rising its full height and a stair tower anchoring one corner. The college center features a soaring dining facility with a two-story space in the middle and three-story areas on three sides. Extensive use of milky-white translucent wall panels in places such as the main stair tower and the college center brings daylight into the buildings without wreaking havoc with energy consumption; at night these panels let the buildings glow from inside.

The academic building's floor plan allows each major department to occupy a different finger, with faculty offices at the end of each double-loaded corridor. Classrooms and faculty spaces are on the first two floors, while administrative offices are on the third. Offices providing heavily used services line one edge of the main spine's ground floor, tucked behind aluminum storefronts that can slide down after hours. By bending the spine slightly, the architects helped reduce the apparent length of the corridor and introduced a welcome sense of animation. Because it faces south, the spine's glazing is limited to triangular windows, vertical strips, and clerestories.

Completed before Pearce Turner Nikolajevich merged with Cannon earlier this year, the new campus has given St. Charles a higher profile that has helped attract more students. *Clifford A. Pearson*





The campus offers a variety of outdoor spaces that range from rolling hills to a paved amphitheater (left) to a covered terrace tucked underneath the second floor of the library. Understanding the importance of the relationship between outdoor and indoor spaces, Nikolajevich and his design team worked with landscape architects Austin Tao & Associates from almost the beginning of the design process. Contact between indoors and outdoors is enhanced by elements such as a terrace adjacent to the dining facility, generous glazing in circulation spaces, and carefully framed views from all buildings.

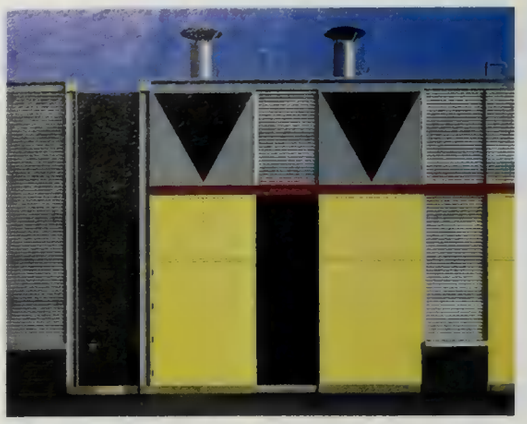
The academic building (top opposite) houses classrooms and faculty offices on its first two floors and administrative offices on the third floor. The building's three-story circulation spine faces parking on the south, making access convenient for students who commute. Double-loaded classroom corridors extending from the spine, however, look onto quiet outdoor areas. By recessing the entry to the library (middle opposite) and carving out a covered reading terrace, the architects were able to wrap the ground-floor reference room with glass on two sides and not flood the space with too much direct sunlight. The L-shaped college center (bottom opposite) serves as the student union with dining facilities and a bookstore on the ground floor and a variety of meeting rooms above.

1. *Student services*
2. *Faculty offices*
3. *Information*
4. *Dining*
5. *Food service*
6. *Kitchen*
7. *Bookstore*
8. *Security*
9. *Circulation desk*
10. *Reference/reading*
11. *Technical processing*
12. *Computer center*





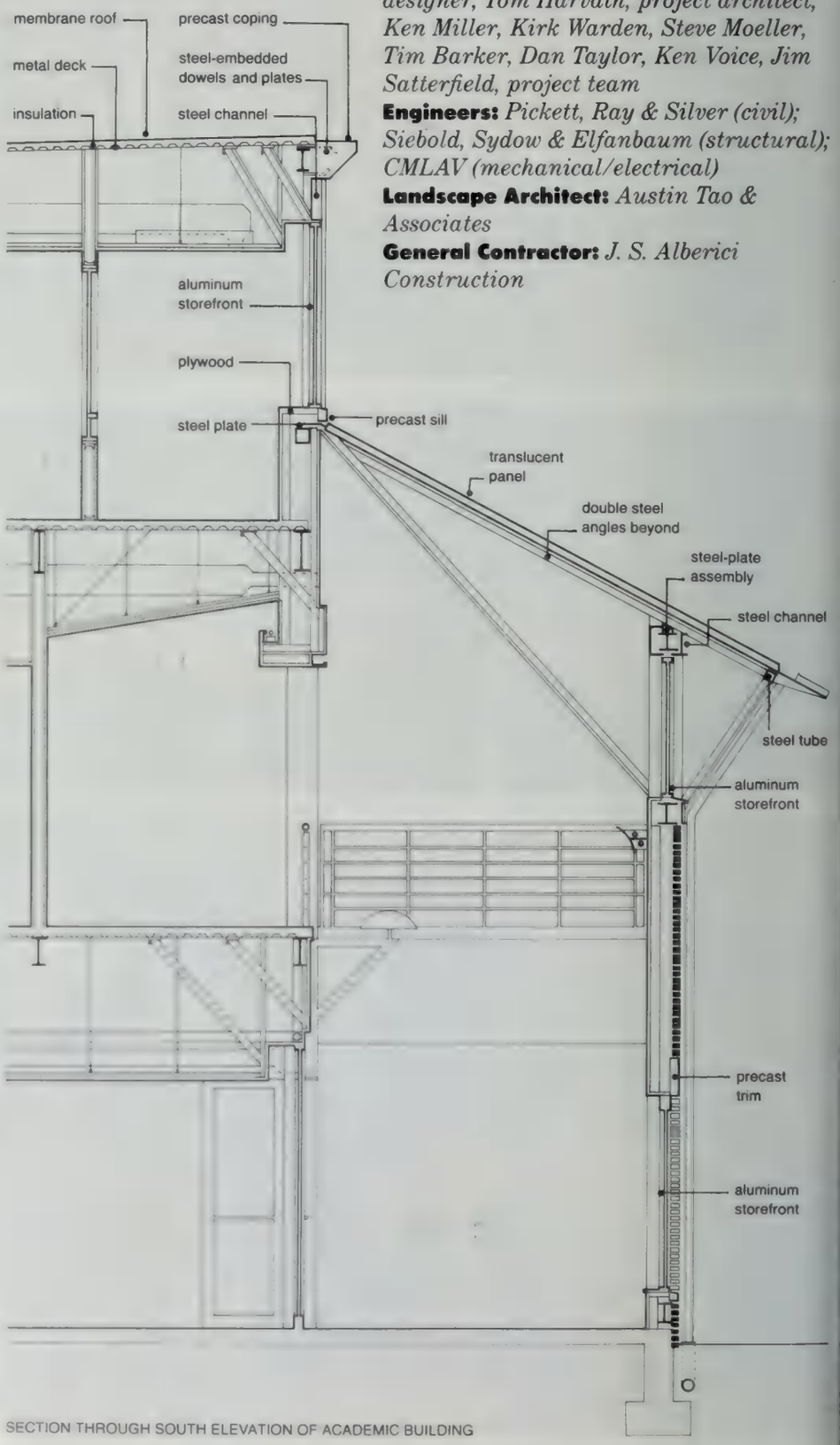






The main spine of the academic building (opposite and section below) is a three-story skylit space. Classrooms and faculty offices are on the first two floors, while administrative offices are housed on the third floor.

Credits
St. Charles County Community College
St. Peters, Missouri
Owner: *St. Charles County Community College*
Architect: *Cannon/Pearce Turner Nikolajevich—George Nikolajevich, partner in charge of design; David Pearce, project manager; Mark Banholzer, project designer; Tom Harvath, project architect; Ken Miller, Kirk Warden, Steve Moeller, Tim Barker, Dan Taylor, Ken Voice, Jim Satterfield, project team*
Engineers: *Pickett, Ray & Silver (civil); Siebold, Sydow & Elfanbaum (structural); CMLAV (mechanical/electrical)*
Landscape Architect: *Austin Tao & Associates*
General Contractor: *J. S. Alberici Construction*

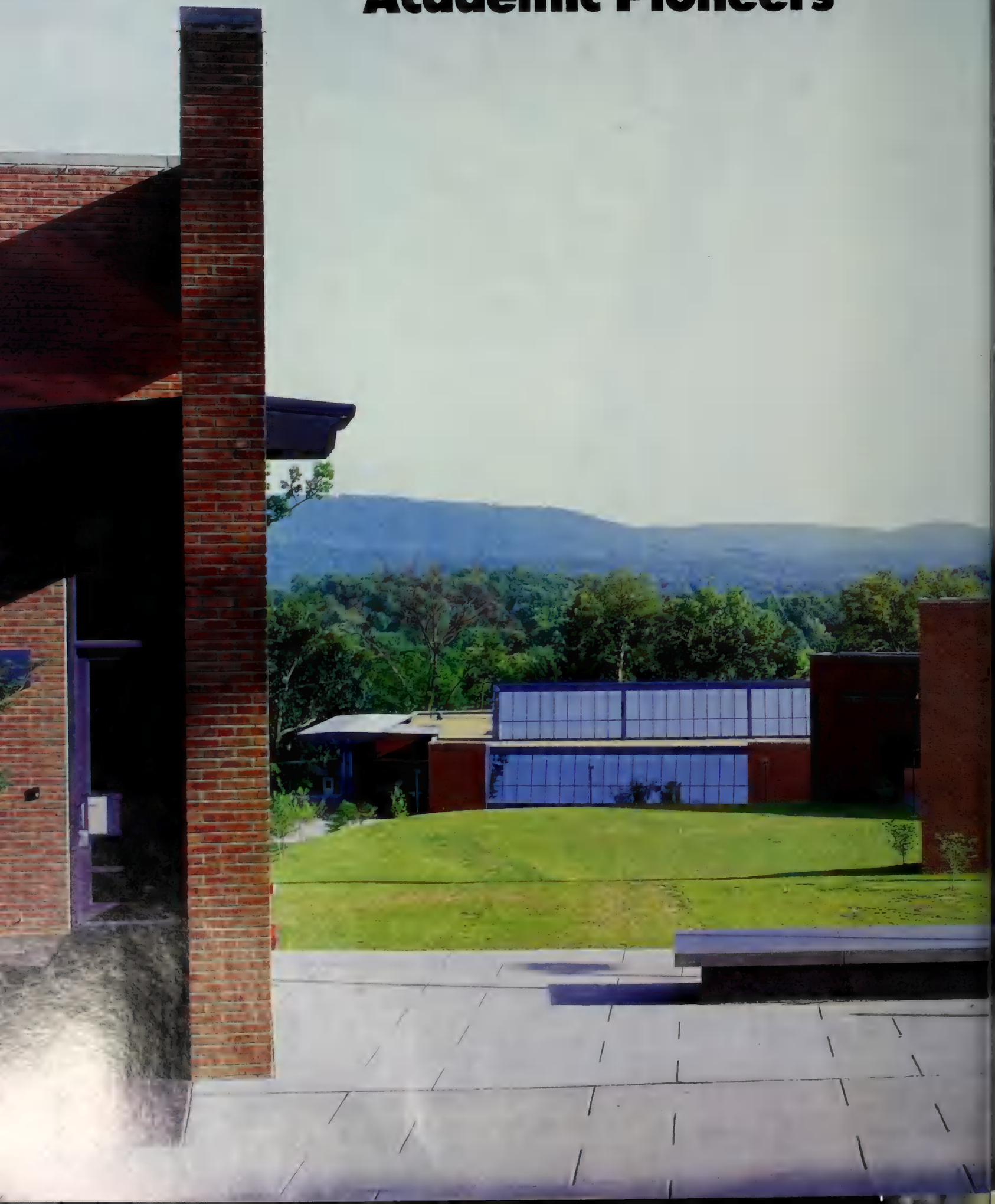


SECTION THROUGH SOUTH ELEVATION OF ACADEMIC BUILDING

Material concerns



Academic Pioneers



Tod Williams and Billie Tsien acknowledge the spirit of Thomas Jefferson's University of Virginia, but impose their own identity on a new quadrangle.

The New College
University of Virginia
Charlottesville, Virginia
Tod Williams Billie Tsien & Associates, Architect
VMDO Architects, Associate Architect



© Michael Moran photos





dding to the much revered campus of the University of Virginia is a daunting assignment for any architect. New York City-based Tod Williams and Billie Tsien, who got a commission to design dormitory space for 525 students and an adjacent dining hall, respected University founder Thomas Jefferson's ideas about creating enclosed outdoor spaces and his use of materials, but imposed on the given program their own perceptions and style.

The University's planning office submitted six sites to the administration as potential homes for The New College. The last on the list—the site furthest from the famous Jefferson "Lawn"—was selected, because as local architect David Oakland of VMDO Architects explains: "It had the least potential for any other type of development." Bounded on the north and west by existing forest, to the south by single-family houses (many rented by students, the majority of whom live off-campus), and on the east by a dormitory complex built in 1985, the steeply sloping 11-acre site had few obvious charms. The architects, however, saw it as a chance to create a world of their own, a plan which coincided in part with the University's tentative foray into the "residential college" model of self-sufficient living-dining precincts that, among other alleged virtues, lessens the influence of fraternities and sororities on campus.

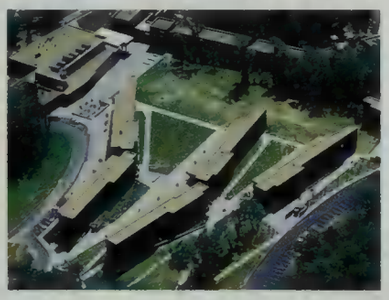
The architects exploited the site's distant mountain views and inherent but not obvious drama by stepping long finger-like dormitory blocks down the hill: two double-bay blocks pivot from central stair towers toward the dining hall at the bottom of the hill, while a lone half-block angles toward the principal's residence, which presides over the complex. Of the project's kinship to Jefferson, Williams and Tsien claim: "[It] shares with Jefferson's vision the desire to create a place with a strong sense of both center and edge; a contained space that feels whole . . . "

While building heights vary from 30 feet to 40 feet due to the slope of the site, the overall effect is of low-slung retaining walls set into a cascading terrain. Precast concrete floors and ceilings are framed by walls of concrete block with a ruddy brick facing. (In the Jefferson tradition, the brick was made by hand in wood molds, even though the architects thought machine-made brick to be more authentic to our time.) Flat roofs are edged by 4-inch-thick slate coping to emphasize the horizontality of the forms. Dormitories have double-loaded corridors with communal areas at each end. Rooms are primarily single-occupancy, but changes in grade provided space for some loft spaces and suites, which are used as faculty apartments.

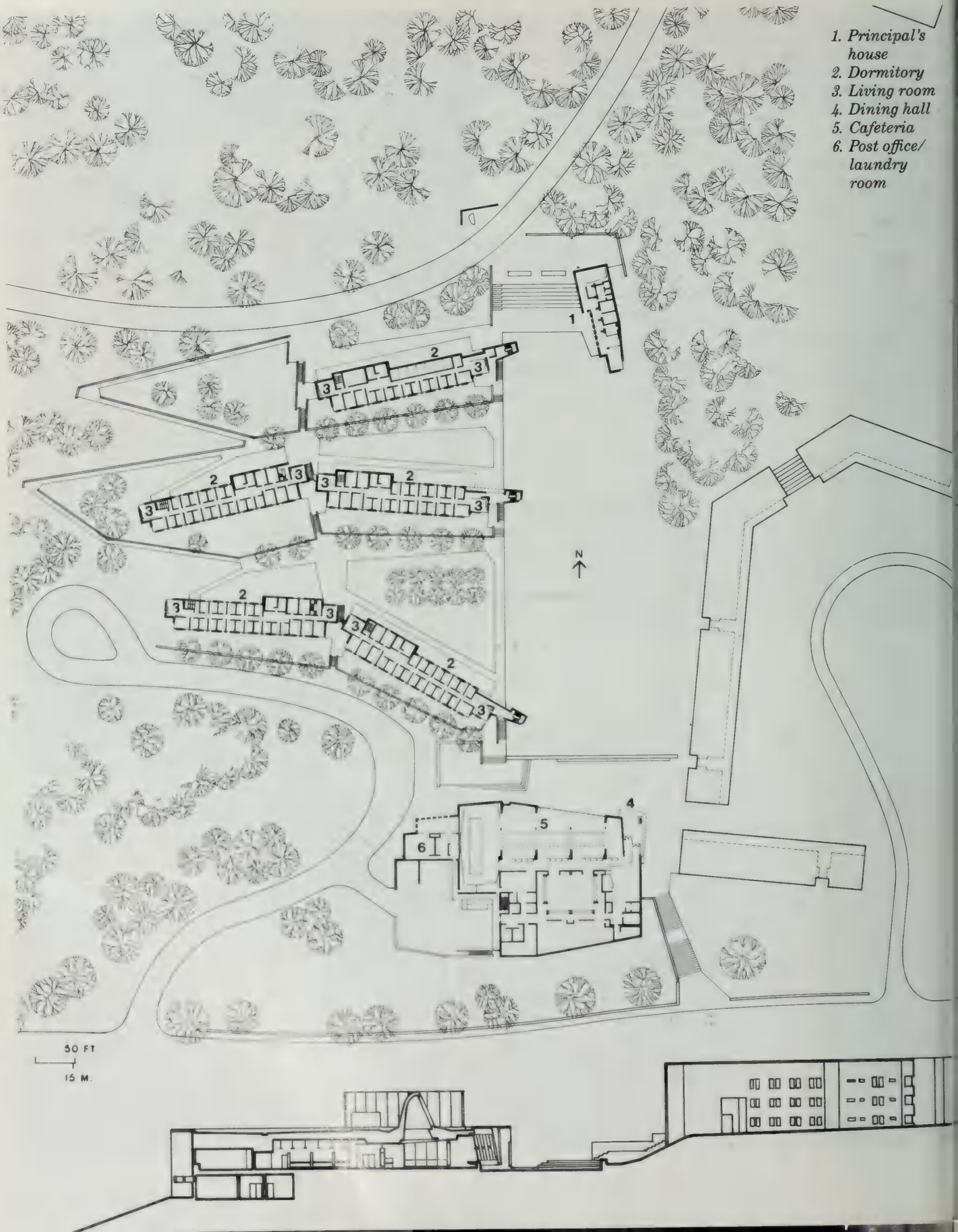
The absence of overt Jeffersonian motifs at the New College has drawn mixed reviews from students and faculty. Admired for its sculptural elegance, the complex has been criticized as too stark, too cerebral. Yet college principal Mel Cherno reports that dormitory space is oversubscribed. Adds architecture student Laurie Edwards in an article published in a University newspaper: "[The New College] is for any human being who has ever been inspired to climb a hill to enjoy a view. It is for anyone who has witnessed the changing colors of sunlight across a brick wall as the golden afternoon turns to blue twilight." Clearly the complex can be judged on its own terms, with Jefferson as a kindred but distant spirit.
Karen D. Stein







Photographed from an airplane (left), the dormitories of The New College look like fingers splayed on a tilted surface. "Knuckles" are narrow passageways between blocks. The dining hall is at the bottom of the hill (above and opposite).


1. Principal's house
2. Dormitory
3. Living room
4. Dining hall
5. Cafeteria
6. Post office/ laundry room
N
50 FT
15 M.

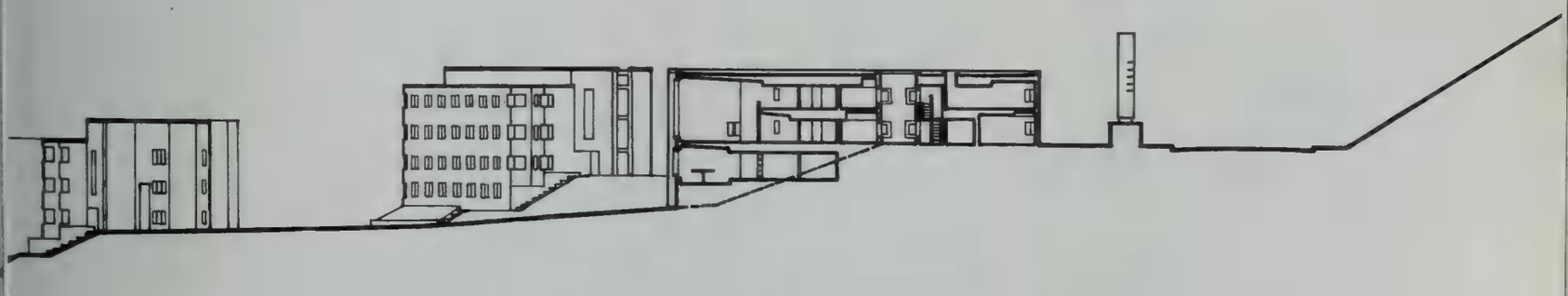
Up Close

Building a new quadrangle. The architects were able to combine the budgets and programs of two separately funded projects—dormitories and a dining hall—to create a residential college, only the second such living-dining facility at the University of Virginia. The steep slope of The New College's 11-acre site did not permit a traditional four-sided quadrangle. Instead, architects Tod Williams, Billie Tsien, and Charlottesville-based David Oakland of VMDO Architects located the dining hall at the bottom of a 60-foot drop in grade and stepped the five dormitory blocks—in two pairs and a single—up the hill, a clear departure from Thomas Jefferson's "academical village." At the top of the hill is the principal's residence, which frames the outer edge of the College's own great lawn. A plaza in front of the dining hall connects to an adjacent 1985 dormitory which shares the cafeteria. Pathways connect dormitories, including a winding sidewalk up the west side of the site that maintains less than a five percent slope to accommodate wheelchair use without hand railings. Of the overall planning strategy, Williams and Tsien state: "This steeply sloping site is so far in time and space from the Jeffersonian lawn that it seemed more about the frontier, the edge, than the civilized containment of the terraced courtyard in the academical village. Thus the long sliver-like buildings of the dormitories are like the first walls erected by new settlers."





The New College (in red) is one mile from Thomas Jefferson's "academical village" (in gray). The architects also studied possible locations for future dormitory construction (in blue).

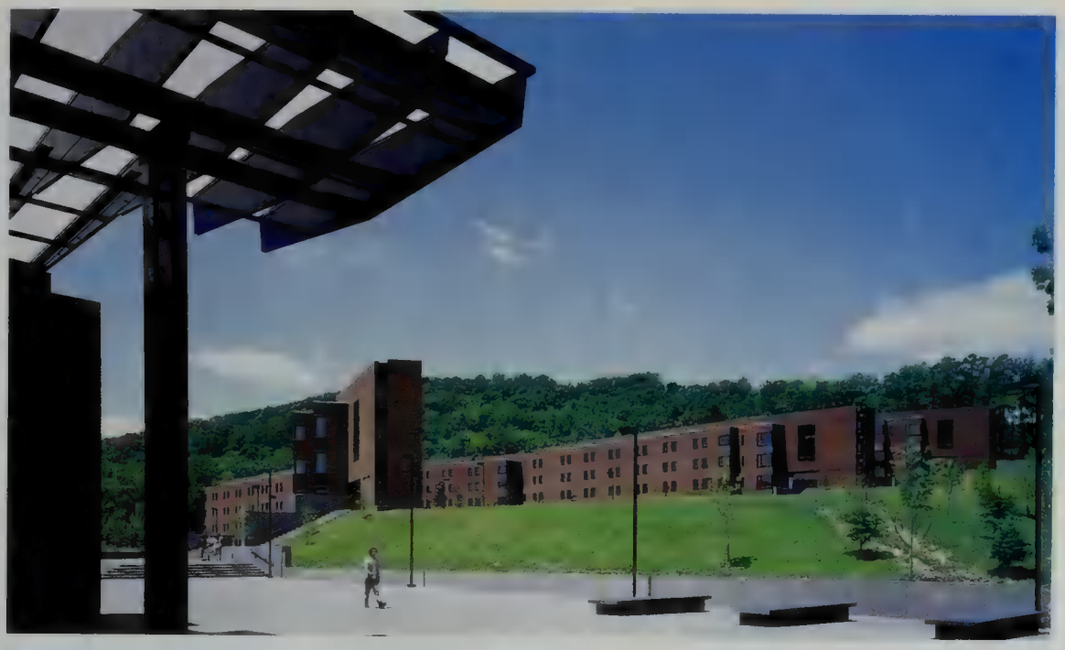




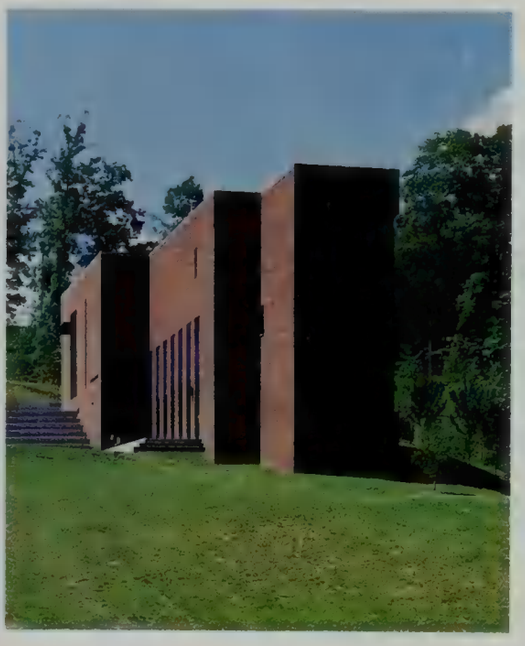
A blue-painted steel canopy with translucent panels and flat, steel columns marks the entrance to the dining hall (top right). It also screens a plaza that unites The New College, adjacent Gooch-Dillard dormitory (not shown—it shares the cafeteria), and a pedestrian thoroughfare to Stadium Road and the rest of the campus (bottom far right).

The New College dormitories are arranged in three rows set into the hillside. At the top of the hill is the principal's residence—two floors of living space with computer and study rooms for students below facing a concrete outdoor amphitheater (middle right and bottom near right). Mel and Dee Cherno, now in their second year as residential college principals, consider The New College's architecture ideally suited to its role as a living-dining facility, a new hybrid for the University.

Detailing of the structures emphasizes their dense horizontality. For example, an unusually dark mortar is used in 3/8-inch-thick horizontal joints that are raked to create a shadow line; blue-painted aluminum-frame corner windows, recessed eight inches from the face of the wall, are framed top and bottom with two-inch-thick slate that projects slightly over the brick to accentuate the horizontal (opposite).







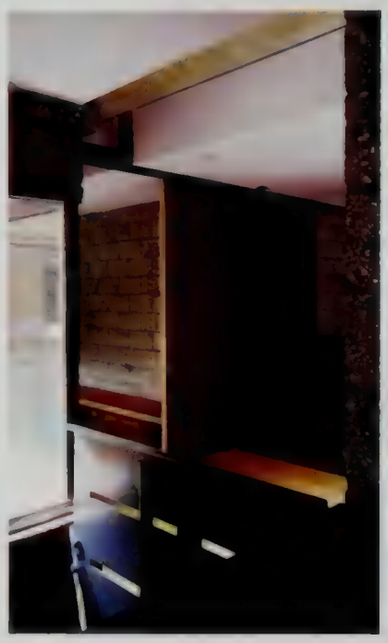


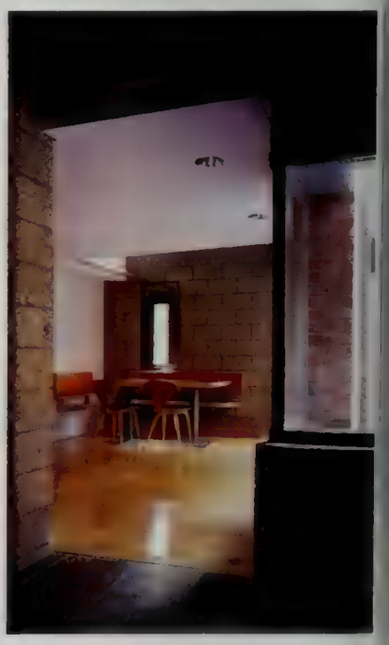
A tight $94-per-square-foot budget did not permit use of costly materials. Inside the principal's residence (this page) and dining hall (opposite) walls are ground-face concrete block. For "decoration," the architects used colored Finnish plywood panels as red sliding doors between master bedroom and hallway (bottom left) and as an inexpensive curved and canted green "mural" in the assembly hall (grooves in the panels add texture). Fluorescent light fixtures are hidden by custom aluminum shields. Other fluorescent and incandescent fixtures are recessed or hung from soffits in the cafeteria, where north- and west-facing windows and clerestories provide daylight.

Credits

The New College
University of Virginia
Charlottesville, Virginia
Owner: *University of Virginia*
Architect: *Tod Williams Billie Tsien & Associates—Tod Williams, principal-in-charge; Brett Ettinger, Billie Tsien, Vivian Wang, Martin Finio, Rick Gooding, Annie Chu, Marwan Al-Sayed, Erika Hinrichs, David van Handel, Matthew Pickner, Kevin Chu, project team*
Associate Architect: *VMDO Architects—David Oakland, principal-in-charge; Daniel Simpson, Jr., Todd Bullard, Jeffrey Dreyfus, Brian Broadus, Karen Boyd, Terry Scott Forbes, Randy Liverman, John Kisner, Micah Rosen, project team*
Engineers: *Glueckner & Osborne (civil); ECI Engineers (mechanical/electrical/plumbing); Dunbar, Milby & Williams (structural)*
Consultants: *Nancy Takahashi (landscape); Arthur Sisca (cost); Lynn Rush (planting)*
General Contractor: *Kjellstrom and Lee, Inc.*











Paradise Lost and Found

Parks and recreational facilities help satisfy the timeless need we have for places to play. They accommodate all sorts of escapist activities, from contemplation to competition. Thousands of U. S. parks are modeled on New York's Central Park, where Frederick Law Olmsted and Calvert Vaux constructed a pseudo-18th century English garden of vast proportions inside that 19th century city.

Today such a monumental park is an anachronism—difficult to fund and maintain in decentralized cities. Cities have turned to smaller parks spread out over a larger areas, more easily adaptable to a population's changing needs. Planners are showing ingenuity in creating parks even where land is scarce.

Parks from wasteland

In urban areas, newer but smaller parks are being built on formerly polluted toxic waste sites. Two examples are Gas Works Park in Seattle, which is considered an adaptive reuse prototype, and the brand-new Mill Race Park in Columbus, Indiana (opposite left and pages 114-117). Tiny compared to Central Park, the land is still sculpted to create environmental interest for the visitor, and to incorporate found or created structures.

Twenty-two-year-old Gas Works Park on Seattle's Lake Union was once a coal-gas extraction plant, and in the 1970s occupied the last open space on the lake. Landscape architect Richard Haag's design added sidewalks, a sundial sculpture, and cleaned up and preserved many of the old gas-plant structures, not memorializing them as monuments to industrial culture, but because they look interesting in and of themselves. The park has become an icon of both the park-as-adaptive-reuse project, as well as what can go wrong when industrial sites are reused. Despite the removal and replacement of contaminated topsoil, the park's subsoil is accused of being the source of toxic chemicals leaching into Lake Union. Still, the park is extremely popular with Seattle residents.

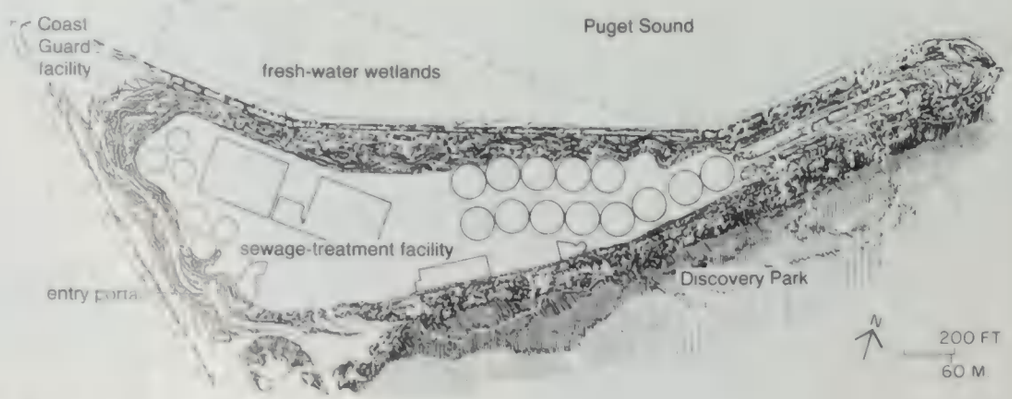
Mill Race Park, near the western edge of Columbus, Indiana, is located on an 85-acre site near the confluence of two streams that form the East Fork of the White River. This land, too, has been reclaimed—cleansed of toxic waste and pollution from a tannery. Landscape architect Michael Van Valkenburgh reused some site features, including concrete retaining walls and two existing gravel pits that were enlarged to create ponds on the site. Architect Stanley Saitowitz's follies have been carefully integrated into Van Valkenburgh's pleasing, well-ordered landscape design.

Parks over "created space"

Parks that have been built over created space are the West Point Treatment Plant [RECORD, June, 1993, pages 136-137] under construction in Seattle, and the new Riverbank State Park in New York City. Although these creative solutions still involve the same kinds of problems that challenged Olmsted, they are the result of attempts to mitigate the impacts of public infrastructure projects.

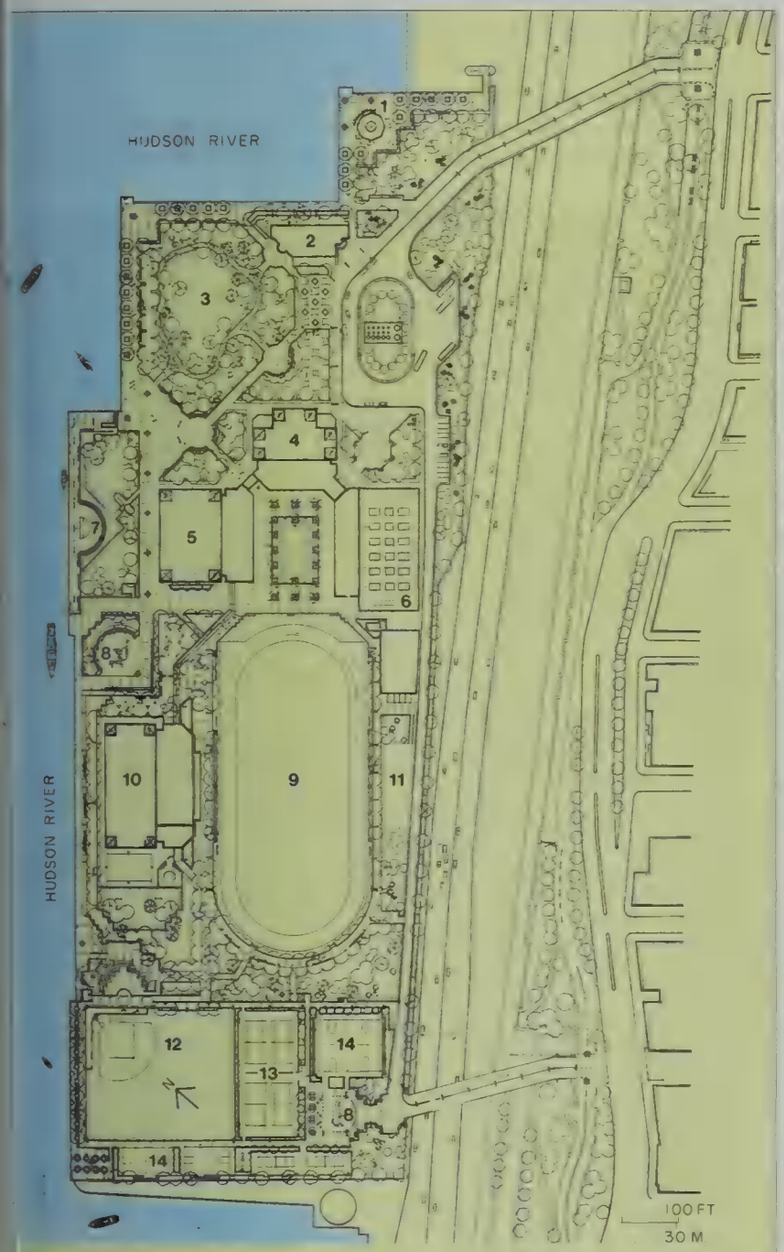
The Municipality of Metropolitan Seattle had to build the park around the West Point Treatment Plant (below) to get a shoreline use permit. It wasn't a difficult choice—locating the sewage-treatment plant elsewhere would have cost billions of dollars just to reroute sewer lines. Landscape architects Danadejieva & Koenig have designed soft earth-forms, seeded with structure-concealing native plants and grasses that will grow in over time, and nature trails. Eventually, the park will provide an additional recreation area in an increasingly crowded urban area.

The $129-million Riverbank State Park (opposite left and pages 110-113) was built on top of a sewage-treament plant occupying 28 acres. Its purpose was to soothe the negative feelings of Harlem neighbors who wished that the plant be located elsewhere. The new town-like recreation complex that architect Richard Dattner designed does not even remotely resemble Olmsted's ideal, or his design process: it evolved by involving community groups. Dozens of meetings were held stretching over several years. It is enormously popular, and is used by tens of thousands on some weekends. *Charles D. Linn*



WEST POINT TREATMENT PLANT, SEATTLE, WASHINGTON

New sites for parks emerge as urban land becomes scarce and the requirements of environmental mitigation are felt.



Riverbank State Park, New York City

1. *Carousel*
2. *Restaurant*
3. *Picnic area*
4. *Cultural building*
5. *Athletic building*
6. *Skating rink*
7. *Amphitheater*
8. *Playground*
9. *Football field*
10. *Swimming pool*
11. *Community gardens*
12. *Softball fields*
13. *Tennis courts*
14. *Basketball courts*



Mill Race Park, Columbus, Indiana

1. *Restrooms*
2. *Picnic shelter*
3. *Boathouse*
4. *Arbor*
5. *River vista*
6. *Lookout*
7. *Amphitheater*
8. *The Tower*
9. *Covered bridge*

Riverbank State Park

New York City
Richard Dattner, Architect
Abel, Bainnson, Butz, Landscape Architect

Any way one looks at it, the new recreational facilities at Riverbank State Park represent a complex design challenge. Located on the Hudson River in New York City between West 138th and West 145th Streets, the $130 million park sits on top of the 28-acre roof of the North River Pollution Treatment Plant, a facility that treats most of the sewage originating from New York City's West Side.

Just the politics surrounding the park have been daunting. A Federal Court decision originally required construction of the treatment plant in 1965. In 1968, the west side of Harlem was chosen as the plant site after other West Siders successfully fought its location in their neighborhoods. The park was offered

© Norman McGrath photos



Riverbank State Park (above) is located on the roof of a sewage-treatment plant just west of Harlem, and linked to the neighborhood by vehicular/pedestrian bridges at West 138th and West 145th Streets. A playground (right) with a spectacular river view is one of many amenities (see plan, previous page) available to visitors.



as a means of soothing angry Harlem residents who felt they didn't deserve the plant in their backyards either, and feared that odor and possibly health-threatening gases would eminate from the plant. In the ensuing 11 years, three complete designs for the park were prepared and rejected because they didn't meet community needs or were either too costly or unbuildable.

Architect Richard Dattner and his design team were selected by a committee of state officials and community representatives in 1979. Their design for the site represents almost nine years of community-based programming and design activity, document preparation, and several cycles of redesign due to value engineering. Construction finally began in 1987, nearly 20 years after the Harlem site was chosen, even as odor from the partially completed plant had begun wafting through the neighborhood, and a state budget shortfall demanded that value engineers be given another shot at the buildings. Dattner barely kept the state from taking over the design and construction of the project with its own designers, who proposed that all of the all of the landscaping be scrapped, and that metal buildings be substituted for the structures originally designed. "It would have looked like a small airport," Dattner says. Although much of the light, airy detailing of the buildings was lost, the designers kept much of the overall design intact.

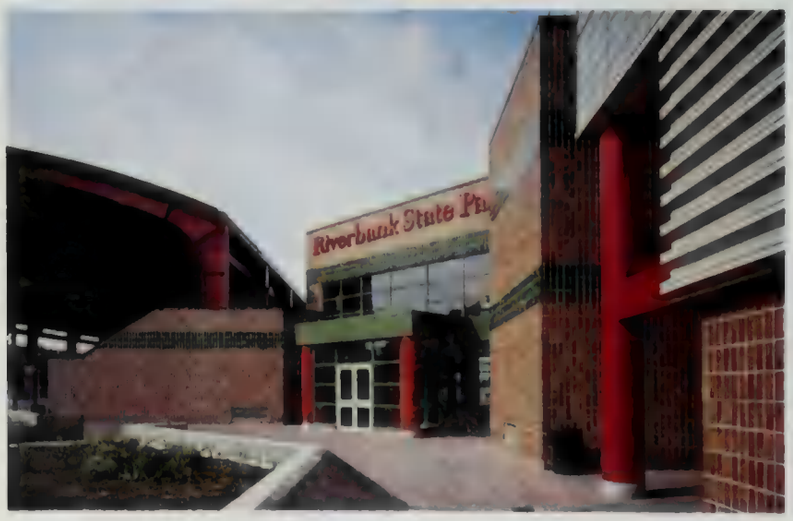


Most of Riverbank State Park is 58 feet above the river. An exception is the Amphitheater and promenade (above) located only a few feet above the waterline of the Hudson. It is isolated to keep noisy events from disturbing neighbors to the east. This level is accessible via the stair/elevator tower in the center of the photo.

The layout and make-up of the overall complex, including the locations of two access bridges, was largely determined in the programming and fact-finding process. Dattner's team accepted community residents as active participants, thus easing tensions and increasing the probability that this design would ultimately be built, unlike the previous plans.

The structural system of the sewage-treatment plant itself influenced the layout of the buildings, both internally and in the context of the site as a whole. The plant rests on caissons driven through Hudson River mud to bedrock. Concentrated loads from park building columns had to rest directly on columns already supporting the floors and roof of the treatment plant—there could be no bearing walls. Thus it was necessary for the buildings' structural systems to conform to the plant's. In addition the plant itself is built of 14 independently moving sections, whose expansion joints could not be bridged by structures. As a result, lightweight metal or tile-faced panels became the building system of choice, much of it placed by helicopter before the connecting







Three views of the Cultural Building (top left and right), and the main entrance to the park. Because all building loads had to be transferred to columns that rested on columns supporting the plant, Dattner chose lightweight tile- and metal-faced panels as the primary wall system. The roof structure of the skating rink is visible to the left of the Cultural Building entrance.

The trees and lush lawn (right) were built directly on top of the plant's precast concrete roof, where loads were limited to 400 pounds per square foot. The sod covers acres of foam panels placed in layers up to 2-ft thick used as filler to decrease the dead-load.



bridges were built.

Uniformly supported loads, such as landscaping and paving, could rest directly on the plant's six-foot deep precast concrete roof structure, but had to be limited to 400 pounds per square foot. To reduce the amount of dead- load, layers of plastic sheet foam up to two feet thick were placed beneath the earth fill.

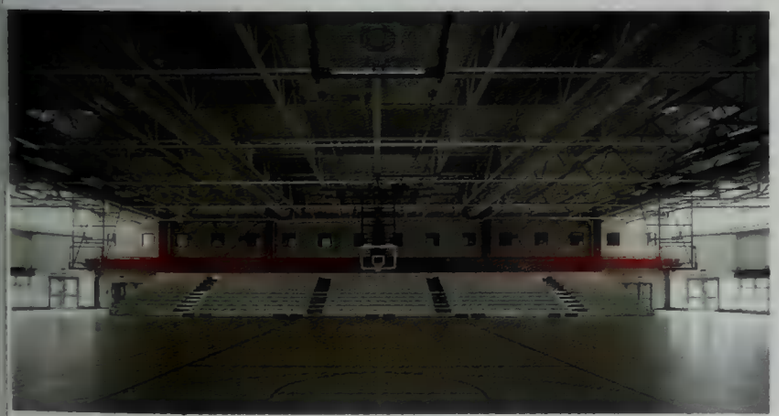
Despite the fact that the buildings at Riverside State Park were designed over a decade before they were built, and even then endured several rounds of redesign, their age is not betrayed by layers of Postmodern frosting, a tribute to Dattner's philosophy that buildings should be timeless. The daylight admitted by the wall and roof glazing that did survive value engineering makes the facilities pleasant to be in. And despite the complexity of the site, its immediate visual contact with the river on one side and the city on the other allows visitors instantaneous orientation. The real proof that Riverbank State Park is an unequivocal success is in attendance figures: on a recent Sunday 50,000 people visited. *C. L.*

Credits
Riverbank State Park
New York City
Owner: *State of New York*
Architect: *Richard Dattner Architect*
Landscape architect: *Abel, Bainnson, Butz*
Structural engineer: *Ewell W. Finley*
Mechanical engineer: *Daniels, Barnes, Wesler & Cohen*









A view of the Hudson River, and Amphitheater stair tower (above left). The Athletic Building (left), along with most of the buildings in the park, is daylit by corner towers built of insulated fiberglass panels. Covered walkways (above) link the Swimming, Athletic and Cultural Buildings.

Mill Race Park

Columbus, Indiana
Stanley Saitowitz Office, Architect
Michael Van Valkenburgh Associates, Landscape Architect

Among architects, the small Midwestern town of Columbus, Indiana (population 32,000) is so famous that getting a commission there, no matter what size, is considered an honor. The town has a reputation as a showcase of Modern architecture, largely due to J. Irwin Miller, a local businessman and self-described "concerned citizen," who established a foundation in the 1950s to pay the fees of foundation-approved architects [RECORD, January 1990, pages 64-67].

Miller's legacy continues to grow, thanks in part to his son, Will Miller, who succeeded him upon retirement. Mill Race Park, located at the western edge of town, is the latest addition to the list of architectural attractions that includes works by Eliel and

© Richard Barnes photos





Eero Saarinen, I. M. Pei, and Robert Venturi.

Located on a flood plain, the park occupies 85 acres where the Driftwood River and the Flatrock River meet to form the White River. Previously occupied by a tannery and a shanty town of ramshackle structures, the area was nicknamed "Death Valley" by the community. A group of local boosters calling themselves "River Rats" spearheaded the cleanup of the site. The intent, according to landscape architect Michael Van Valkenburgh, was to "create a small town equivalent of [New York City's] Central Park." Van Valkenburgh's master plan takes into account soil contamination from such tannery refuse as horse hides and hoofs: while some mature trees were removed to conform to safety codes and others were pruned to open vistas, only species able to withstand the rubble in the soil were planted. Van Valkenburgh added two 1,000-foot-long rows of Kentucky Coffee and Hackberry trees to reinforce the dominant east-west grid of Columbus. The trees are also parallel to existing tannery foundation walls, which





The amphitheater (opposite top and bottom) opens toward concrete bleachers built into the hillside and toward the great lawn below. The bleachers accommodate 1,000 spectators, while some 20,000 people can gather on the lawn for performances. The boat house (above and left) has a sloping roof atop a glass block and red-painted steel structure.

were retained as borders of a new parking lot.

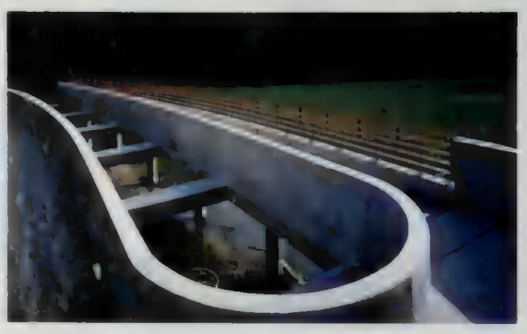
San Francisco architect Stanley Saitowitz was originally commissioned to give frank yet artful form to such utilitarian park structures as restrooms and picnic shelters. But the program grew to include an amphitheater, an observation tower, a boathouse, a fishing pier, and an "arbor," with the support of his client, the Department of Parks and Recreation, and local community groups.

An existing pond was excavated to form a 450-foot-diameter round lake ringed with cherry trees—"a symbol of democracy" says Van Valkenburgh. The dug-up earth was used as the berm of the nearby amphitheater.

Saitowitz tucked smaller structures, also of red-painted steel, among the foliage. Restrooms topped with curvy "M" and "W" letters are raised 6 inches from the ground to allow water to drain when the site floods. "The project reinterprets the idea of a folly in the park," explains Saitowitz of his Tinkertoy-like red objects dotting the landscape. "Although I had originally









planned for the steel to have a metallic silver-green finish, when the pieces were delivered with a red primer coat, the forms had greater clarity. Like the Golden Gate Bridge, they stayed red." *K. D. S.*

Credits
Mill Race Park
Columbus, Indiana
Owner: *City of Columbus, Indiana Department of Parks and Recreation*
Architect: *Stanley Saitowitz Office—Stanley Saitowitz, principal-in-charge; John Winder, Daniel Luis, John Bass, Vincent Chew, and David Lynch, project team*
Landscape Architect: *Michael Van Valkenburgh Associates—Michael Van Valkenburgh, principal-in-charge; Tobias Dayman, Laura Solano, Michael Lindenlaub; project team*
Engineer: *Santos and Urrutia (structural)*
Consultant: *S. Leonard Auerbach & Associates*
General Contractors: *W.C. Brown Welding; Dunlap; Rapp and Mundt; Taylor Brothers; Force Construction; Contractors United*







The large picnic shelter (opposite top) seats over 50 people. Restroom structures (opposite middle left and right) are 6 inches off the ground to accommodate river flooding, which occurs several times a year. A sinewy concrete wall marks the place for fishing (opposite bottom left). A tubular "arbor" spans a walkway (above), while a river overlook (far left) and an observation tower (near left) provide overall views of the park.



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Kaiser Permanente Profile

Continued from page 45

too glitzy at Kaiser. "It's a balancing act," says Chester Widom, of Widom Wien Cohen architects (they're doing several projects for Kaiser). The Walnut Creek architectural review board, he says, once insisted on a granite facade, an image Widom says was "probably inappropriate for Kaiser, even if it turned out to be cheaper."

How Kaiser uses architects

Architects who work for Kaiser characterize the organization as fair but demanding. Selection is quality-based, and architects are asked to perform all of the usual design services with the exception of programming. Architects are usually responsible for shepherding projects through the state's demanding review process, but Kaiser's standards speed the reviews. A contractor is often hired during the design process to offer advice on construction techniques and estimate costs. The same contractor may or may not build the job. Kaiser negotiates much of its construction work with a selected general contractor (using a guaranteed maximum price), who bids-out the subcontracts. Denton and Bernhardt have rejected design-build as not oriented to Kaiser's long-term outlook and its need for flexibility and expansion.

As Denton admits, construction can be frustrating. "We have to build with the right amount of money and the buildings have to work. In the medical industry this can be hard to do because changing technology drives the need to change the building. We may make changes right up to the last minute, but we still want it done on time."

Wayne Ruga, who has seen facilities and met architects from all over the country, sums up the dilemma of Kaiser (and presumably the large-scale providers envisioned under the Clinton plan) thus: "They are an extremely large organization trying to provide services for a huge and very diverse population. The management problems that they're faced with in doing this are only equal to problems our government faces—agencies like the VA or the Department of Defense." How do they meet the challenge? "They've worked to understand these issues and deal with them. They are centered around prevention and education, and both aspects are very positive," Ruga responds. "When you go into a Kaiser facility, you get an immediate sense of welcome and that they want to take care of you."

James S. Russell

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Construction Volume Update

Continued from page 51

to other types of public-works construction through the end of this year and into 1994.

Institutional building

The institutional-building market offered welcome support to the construction industry during the early 1990s downturn. While total construction fell 9 percent in 1990 and then 6 percent in 1991, the value of institutional starts ran counter to this trend by posting gains of 6 and 7 percent. Avoiding the boom-and-bust behavior shown by other types of construction, the slow but steady growth for institutional building has allowed it to exceed the commercial and industrial sector, from 1991 through the present.

The underlying trend for institutional building has followed the slow change of demographic developments. During the 1960s educational building was spurred by the impact of the baby-boom generation on school enrollments. More recently, the increase in births since the mid-1970s (referred to as the baby-boom echo) has supported an extended rise for school construction. Growth at the other end of the age spectrum, those 65 and over, has contributed to an increased need for health facilities. And societal changes have played a role—the tougher stance against drug-related crimes has resulted in stiffer sentences, and construction for a growing prison population.

The near-term pattern for institutional building can be shaped to some extent by the fiscal status of state and local governments, which have come under increasing stress since the recession of 1990-91. With unemployment up by 2 million persons since 1990, this has meant states have had 2 million fewer taxpayers, and 2 million more individuals receiving unemployment benefits. The National Governors Association cited state general-fund budgets as increasing just 3 percent for both fiscal 1993 and fiscal 1994, much less than the 8 percent annual growth averaged in the 1980s.

A saving grace for institutional building is that states maintain both an expense budget and a capital budget, the latter including construction projects. Fiscal stress hits the expense budget most severely, causing services to be reduced and payrolls cut. With most public projects financed by the bond market, the impact of state fiscal stress on construction is less direct. The limitations come from keeping the interest payments on debt at manageable levels, as well as the greater scrutiny given to bond issues by voters hesitant to add to the debt burden.

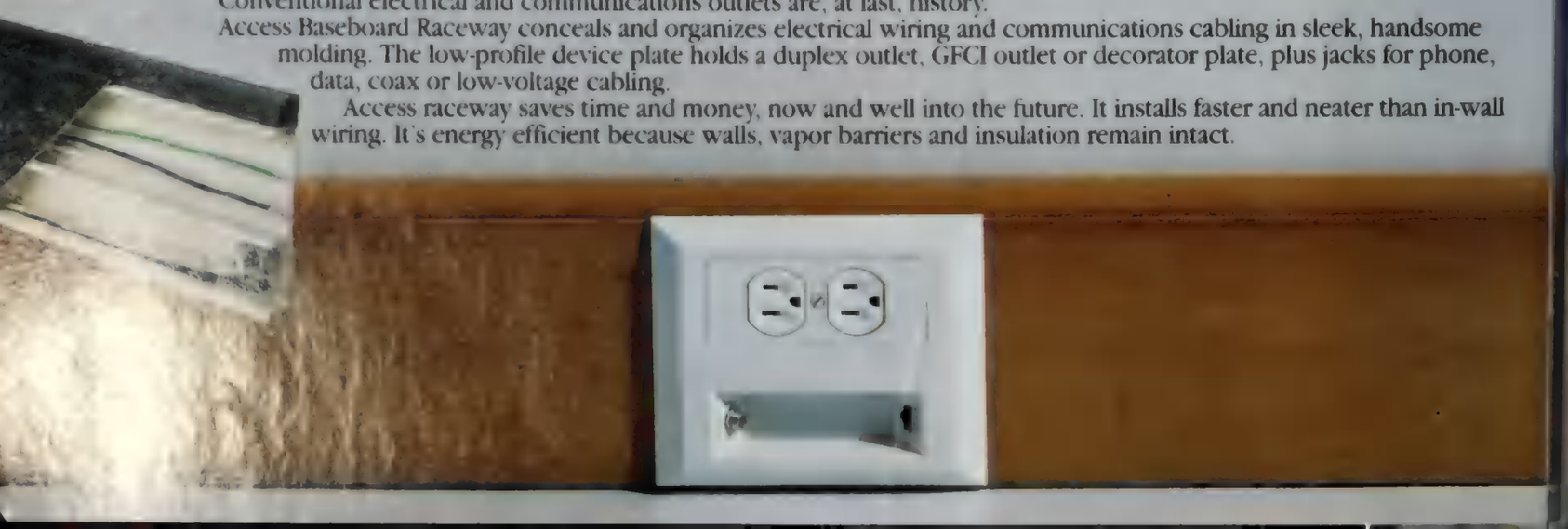
To the extent that institutional building experiences cyclical sensitivity, it tends to lag the business cycle—both on the way down and the way back. This occurs because much of state fiscal stress is related to the level of unemployment, which itself follows the business cycle. Once unemployment eases, income-tax revenue picks up and spending on unemployment benefits recede. Accordingly, the period of maximum stress on institutional building would be 1992 and 1993. The economic improvement expected in the latter stages of this year should aid this sector's 1994 prospects.

Activity for institutional building did stabilize in 1992 and 1993 when viewed in terms of contracting value, and in square-footage terms slipped back 7 percent from the 1991 peak. Educational building departed last year from its longstanding upward trend, but since then it has made at least a partial rebound. Offsetting this support has been temporary weakening in public buildings, specifically detention facilities, and in transportation structures such as terminals and hangars. Health facilities construction has also lost momentum from last year's heightened activity, due in part to uncertainty over

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the Clinton healthcare reform proposals.

Even with this pause, institutional square footage in 1993 is estimated at 375 million square feet—still 45 percent above the early 1980s trough and much stronger than the relative status of most commercial categories.

The moderate improvement expected in 1994's economy should allow some measure of relief for state governments. The improved employment picture will expand the tax base while alleviating income maintenance payments, making possible a return to pre-recession priorities. Institutional building in 1994 is projected to climb to 395 million square feet, and post a contract value gain of 9 percent.

The one exception next year could be healthcare building, still stalled by uncertainty over the shape of the reform package. Farther out, the primary effect of the Clinton plan will be to re-emphasize the change in this market that occurred during the second half of the 1980s. That is, it will encourage the expansion of health-maintenance organizations, which deliver their services in clinic settings, probably at the expense of more costly hospitals. With expanded coverage for long-term care, nursing homes will also benefit. In general, the structural shift about to take place in this market should support generally stronger levels of building activity by mid-decade.

Income properties

This combination of multifamily housing with offices, hotels, shopping centers, and other types of commercial construction represents what has been most responsible so far for the construction industry's substandard recovery. Following a 1985 peak of $88 billion, contracting has fallen to about half that total in reaching 1992's $43 billion. In constant dollar terms, last year's income property total was more than 60 percent below its mid-1980s peak.

The boom itself dates back to the 1980 deregulation of the savings and loan industry, followed by the real-estate investment incentives contained in 1981's Economic Recovery Tax Act. Tax reform in 1986 eliminated accelerated depreciation and passive-loss provisions, and what was a workable project in 1981-86 later became a problem asset. The collapse of the savings and loan industry in 1989 and the weakened condition of commercial banks in 1990 were the end result of a decade of excess. Subsequent re-regulation brought the banking industry back to health, but it effectively removed funding available for speculative development.

Aside from these legal and financial aspects, the glut of commercial space is one essential issue to be dealt with. In the case of offices, the amount of excess space is estimated in the range of 700 to 800 million square feet—meaning if no new office space were added, it would require about three and a half years to bring supply into balance with demand.

With such an overhang of excess space, the difficulty is explaining why any new construction should take place at all. Most economic recoveries generate an increased need for space—with growing employment the excess supply retreats in at least some local and regional markets. Even with stubbornly high vacancy rates and falling real estate prices, last year witnessed an additional 85-million sq ft of new-office starts. Admittedly, the notion of a turnaround raises legitimate questions. On the demographic side, the "baby bust" group of the 1970s is reaching young adulthood at present, causing the 18- to 34-year-old cohort to shrink by five-million persons in the first half of the 1990s. This is just the group



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Construction *Continued from page 121*

needed to help absorb the overbuilding of the last decade. In addition, a strong case can be made that the amount of office space needed per worker is less today than 10 years ago, given the computing and communications capabilities now possible for work at home or on the road, not to mention the increasing use of temporary workers.

Still, there are positives. The quarterly pattern for offices, warehouses, and hotels suggests that these categories have reached their "natural bottom," and the potential for change is now on the upside. As noted, a Federal Reserve survey of 60 banks points to some easing of the credit crunch. Vacancy rates, while still high, have been receding for several quarters. There is one caution in dealing with a commercial building turnaround, however: given the low starting point for these categories, the size of the percentage increase may be misleading. In all cases the absolute amount of any pickup in activity will be small by historical standards, leaving the category at a still depressed level.

Multifamily Housing—After falling to 162,000 units in 1992, the lowest level in over 30 years, multifamily housing is expected to gain some momentum during the second half of 1993. The total of 175,000 units projected for this year will be the first advance shown since 1986 for this depressed sector. Some support next year may be possible from the reinstatement of tax credits for low-income rental housing, not to mention the greater housing focus of the Clinton Administration. Activity in 1994 will rise to 190,000 units, still a very low figure.

Offices—The downward trend for offices accelerated back in the 1990-91 period, as many of the vulnerable aspects of the office market became fully realized in the midst of credit crunch and recession. The rate of decline eased in 1992 and 1993, bringing this year's total to an estimated 80 million square feet. Modest improvement was reported in mid-1993; this is expected to continue into next year resulting in a 1994 annual volume of 87-million square feet.

One point of interest for the office total—while the downturn for new construction has been severe, alteration work has been relatively stable. Accordingly, the share of office contract value devoted to alterations has increased from 20 percent in the mid-1980s to about 45 percent in 1993.

Stores and Shopping Centers—This category continues to stand apart from the other commercial structure types, since it bottomed out in 1991 at a level well above its early 1980s trough. Following last year's 6 percent gain to 184 million square feet, the upward trend will advance the store total to the 200-million square-foot level in 1993. The traditional lagged relationship of stores to one-family housing is one benefit at work here; but perhaps more important is a structural shift taking place in retailing. Large discount outlets have engaged in aggressive expansion to capture market share from higher-cost sellers; in this vein high vacancy rates and restrictive bank financing are not major impediments. Contracting is expected to climb further in 1994, reaching 215 million square feet.

On balance, the income-property group will stabilize in 1993 as gains for stores and multifamily housing offset the last stages of weakening from the other categories. In 1994 an 11 percent rise in contract value is expected from a very low base, which in real terms leaves the group still about 50 percent below its 1985 peak.

Manufacturing Buildings

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Construction *Continued from page 122*

factory construction fell sharply in sliding to 992's 95 million square feet. This category has shown an essentially downward trend over the past two decades, corresponding to the shrinking manufacturing sector in the U. S. economy, and the tendency by producers to invest more in equipment to enhance productivity (rather than structures).

The quarterly pattern indicates strengthening occurred at mid-year 1993; this should allow an annual rise in square footage to 105 million square feet. (A sharp reduction in petrochemical work this year, however, will lead to a decline in contract value.) The pickup in the capacity utilization rate to this year's 81 percent should keep the gradual rise going; a level of 115 million square feet is anticipated for 1994. Implementation of the North American Free Trade Agreement could negatively impact this category, though its projected level is already low by historical standards.

The shape of 1994

Combining these sectors together results in a total construction gain in 1994 of 9 percent. The notable feature of this forecast is its balanced nature—growth is projected across a range of categories rather than just one or two. Housing, public works, and institutional building will advance from relative strength; meanwhile, the income properties will creep upward from a very weak position.

Of course, there are risks. Weak consumer confidence could derail housing, which happened in 1992 and 1993. Deficit reduction pressure at the federal level might cut back on the gain expected from the new highway legislation. Uncertainty over the healthcare reform legislation might induce a larger than expected decline in health-related construction. And, the income property group might flatten out with no upturn, despite the glimmer of an upward trend and the one pocket of strength (stores) already seen. But assuming the forecast holds, the pattern over the past two years is similar to the sequence of earlier recoveries, in that housing leads the way with support coming from other types of construction.

This time the recovery has a unique 1990s twist. The upturn for housing is taking place over at least three years and it is being driven almost entirely by the single-family side of the market in its early stages. For a couple of reasons, non-residential building is joining the recovery in a much more delayed and gradual fashion than in the past. Institutional building, which by its very nature avoids sharp swings, has assumed a more dominant role in the non-residential total. And the response by the commercial categories has been for the most part minimal, due to the glut of excess space, the reduced availability of funds for development, weak job growth, and corporate restructuring.

One useful piece of information for looking at the mid-1990s comes from comparing the period to the mid-1980s—regarded as the "heyday" for the industry. As taken from F. W. Dodge's Five-Year Forecast, the following points come through when looking at the 1994-98 period relative to 1984-88:

- Total construction will be close to the constant dollar total of the mid-1980s—just 2 percent behind. The composition will be substantially different, however.
- Single-family housing will show a 15 percent increase in constant dollars relative to the mid-1980s. This is due to greater numbers of units and larger house sizes.
- Public-works and institutional building are each about 25 percent greater in real terms than their mid-1980s levels.
- The income-property group, even with modest improvement, will be about 40 percent less in the five years ahead. ■



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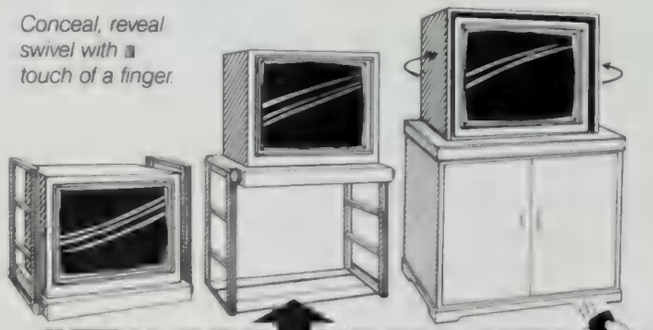
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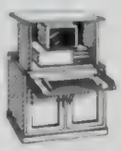
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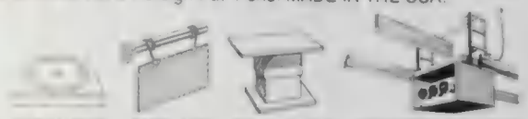
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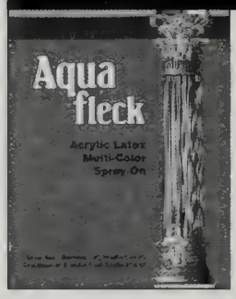


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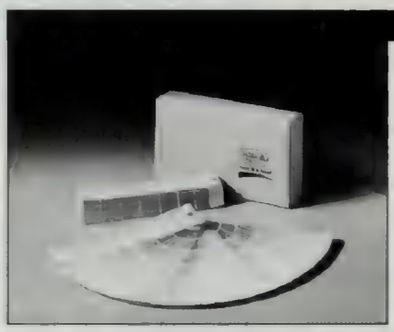
Product Literature/Paints and Coatings





400. Latex multicolor finish
A water-based product, Aquafleck is said to offer the design and durability of alkyd multitone paints, but without odors, VOC emissions, or requiring masks during application. Non-toxic, the two-step system dries quickly and is easy to clean up. Color chart shows all base-color and fleck options. California Products Corp., Cambridge, Mass.

401. Surface treatments
A folder holds chips of 12 colors of high-performance architectural wall coatings. Offered in four problem- and surface-specific acrylic formulations, including Canyon Tone Stain, products are said to provide waterproofing, dampproofing, color uniformity, and graffiti resistance to virtually any exterior wall surface. United Coatings, Greenacres, Wash.

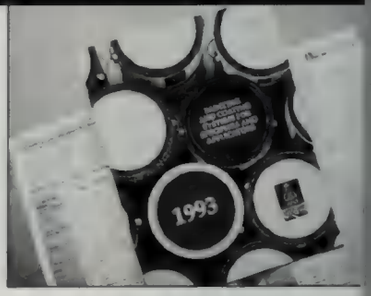




402. Historic and other paints
A new fan deck holds paint chips of over 1,850 distinct shades, including Moore-O-Matic custom colors for commercial, industrial, and residential use, as well as the 174 colors in this manufacturer's Historical Collection. Benjamin Moore & Co., Montvale, N J.

403. Field-applied coatings
A color brochure explains how this spray applicator's Field Service Division specializes in refinishing and restoring architectural finishes on column covers, cladding, curtain-wall components, and entrances made of aluminum, steel, glass, plastic, wood, masonry, brass, and bronze. Linetec, Wausau, Wis.





404. Exterior-wood toners
A fan-deck format holds sample wood strips coated with CWF-UV exterior-wood finishes in clear, cedar, redwood, mission brown, and driftwood gray, as well as an uncoated strip for comparison. Protective and decorative toners can be used on new and existing horizontal and vertical wood surfaces. The Flood Co., Hudson, Ohio.

405. Architectural paint system
A color-coded reference guide with a 148-page catalog lists interior, exterior, and heavy-duty coating system by VOC compliance. Other sections recommend primers and topcoats by substrate, and offer surface-preparation instructions. Complete flame-spread, performance, and other test results given. Sherwin-Williams Co. Cleveland.*

** Product Data on CAD disk*

Continued on page 129

For more information, circle item numbers on Reader Service Card.

Manufacturer Sources

Pages 80-85
Becton Dickinson Building 2
Kallman McKinnell & Wood Architects, Inc.
Brick: John Kelly, Inc. Limestone: Bergen County Cut Stone. Copper roofing: Mueller Roofing. Glass: PPG; LOF; Union County Plate Glass. Skylights: Viracon-Super Sky. Locksets: Schlage. Hinges: Stanley. Closers: LCN. Exit devices: Von Duprin. Cabinet hardware: Hafele. Acoustic tile and demountable partitions: Nasasi White. Custom woodwork: Fred Schill. Concrete finishes: Tennant. Lighting fixtures: Zumtobel. Elevators: Dover.

Pages 92-97
St. Charles County Community College
Cannon/Pearce Turner Nikolajevich, Architect
Modular brick: Acme Brick. Curtain walls: PPG. Precast concrete: Klueter Bros. Roofing: Firestone. Glass: Spectrum. Translucent glazing: Kalwall. Metal doors: Curries. Wood doors: Weyerhauser. Locksets, closers, and exit devices: Sargent. Hinges: Soss. Checks: Rixson. Suspended ceilings: Donn; USG Interiors. Paints and special coatings: Sherwin Williams. Wall coverings: Seabrook. Flooring: Fritztile. Carpet: Stratton. Indoor lighting: Sterner; Diversified. Outdoor lighting: Lumac. Hydraulic elevators: Otis.

Pages 98-107
The New College
The University of Virginia, Charlottesville
Tod Williams Billie Tsien & Associates, Architect
Wood-molded brick: Old Virginia Brick. Curtain walls and entrances: EFCO. Blue-painted steel canopy: Lynchburg Steel. Translucent cladding: General Electric (Lexan). Partition fabric: Jack Lenor Larsen. Custom woodwork: Architectural Wood products. Paneling: Fin Ply. Solid-surfacing (dining hall): Wilsonart (Gibraltar). Buckingham slate flooring: Architectural Stone Products. Outdoor lighting: BEGA. Special lighting, aluminum shields: Custom Ornamental Iron.

Pages 114-117
Mill Race Park Structures
Stanley Saitowitz Office, Architect
Glass block: Pittsburgh-Corning. Hollow-metal doors: Curries. Rolling doors: Cornell. Plumbing fixtures: Acorn. Accessories: Bobrick. Paints and stains: Tnemec. Glazed CMU: Burns & Russell (Spectra-Glaze II). Flooring: Morton (Tread-Grip); Carpeting: IKG-Borden. Lighting fixtures: BEGA; Prescolite; Stonco; Hubbell; Altman Stage Lighting; Hydrel. Personal hoist: Gillespie Corp. Clock: Electric Time.

Correction
A report on the selection of firms to design the fine-arts facility for the University of California at Riverside [RECORD, October 1993, page 26], mentioned "invited entries by Peter Eisenman and Tod Williams/Billie Tsien, and, in earlier rounds, Steven Holl, Antoine Predock, and Michael Rotondi. . ." In fact, Steven Holl Architects was not involved; it did not submit an entry nor participate in any way. The selection process involved interviews rather than a competition.

In the same article, the firm name BOORA, one of the firms selected, was misspelled, as was Barbara Kallas' name. Frank Israel is a design consultant to BOORA.

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Philadelphia Zoo Profile

Continued from page 44

be carried out. I think most architects would say that we were fairly demanding in terms of what we expected them to learn and the time we expected them to spend at the Zoo." This point of view led to unusual selection criteria. "More than anything," continues Cebul, "it came down to chemistry. Once we were convinced a firm had design and management capability, we were really looking for people with whom we thought we could share a couple of years of our lives." Zoo exhibits can be deceptively simple looking. But, says Cebul, "you've got this tremendous coming and going of humanity with all the needs to serve them with restaurants and food and trash removal. And then you've got this other world of animal needs. As an architect, you have many clients." To meet these diverse needs the Zoo often required specialists from lighting to exhibit construction. Tight budgets had to accommodate elements that could be staggeringly expensive: artificial rockwork, for example, or government-mandated air-handling requirements for off-exhibit animal-holding areas. Some projects were financed partly through city funds, which meant cumbersome procurement methods. The Zoo's management success, though, brought an offer from the State of New Jersey to help manage its new aquarium, which recently opened in Camden, near Philadelphia. The Zoo has also received an AIA Urban Design Award.

The changing of the guard

Today the Zoo faces new challenges. Donaldson died two years ago, and the search for his replacement was prolonged. Their purses tighter, the number of visitors is flat in spite of the popularity of the recently completed Carnivore Kingdom by Bohlin Cywinski Jackson. Fund-raising is harder, too, with institutions competing for fewer donor dollars.

The new director, Pete Hoskins, inevitably brings a different perspective. "There's been a tremendous change in the zoo world over the last three to four years around more sophisticated notions of conservation and education," he says. "That certainly affects programming and physical plant." The Zoo is committed to an extension of the Carnivore Kingdom, called Lion's Lookout (also by Bohlin Cywinski Jackson), and a badly needed renovation of its animal hospital (Dagit/Saylor architects), and hopes to build a $10-million education center in honor of Donaldson. With these projects underway, Hoskins sees "three years plus in which to do more serious thinking about the whole Zoo." He anticipates updating the master plan and emphasizing the Zoo's education role. He expects the Zoo to be more activist in trying to turn visitors into environmentalists. In the meantime, the Zoo, says Hoskins "is under severe economic pressure. We are almost completely dependent on dollars generated ourselves. Until 1988, the city provided $750,000 for operations. That went to zero in 1989, and we're still struggling with that loss."

Much of the staff Donaldson assembled has also moved on. Hoskins hasn't had a chance to put his own stamp on the Zoo, but Bernard Cywinski, of Bohlin Cywinski Jackson, sees him as "offering a very consistent direction so far," though possibly "less confident in the guiding of less-experienced architects." Charles Dagit, as others, suspects a somewhat more conservative regime but says, "the [new] assemblage of creative juices there has yet to be tested."

James S. Russell

Disclosure: the author once worked as an architect on Philadelphia Zoo projects.



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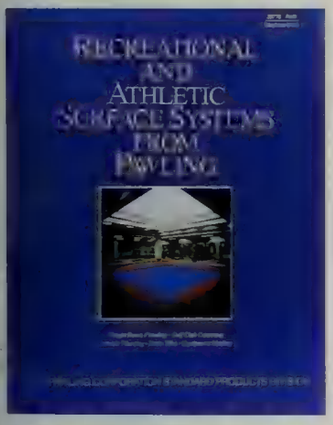


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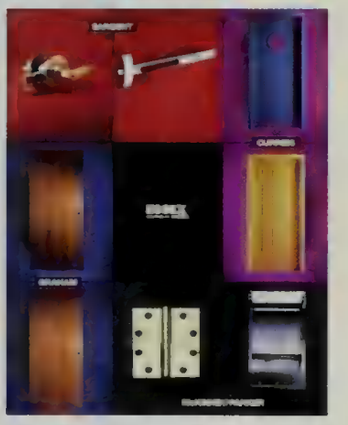


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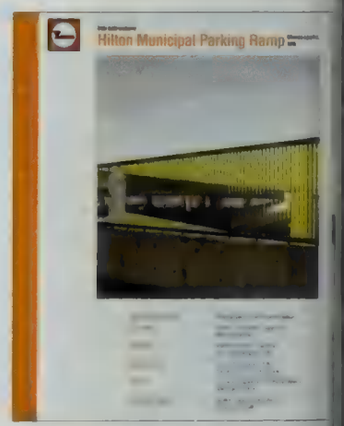


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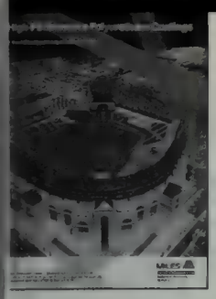
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ating structural steel prior to erec-
on. The deep-green urethane chosen
said to be very resistant to ultra
olet-induced fading, and can be
plied by spray or brush. Miles, Inc.,
ttsburgh.



407. Multicolor textures
Described as a durable, UL Class A fire-rated alternative to paint and vinyl, Zolatone multicolor wall finish comes in various degrees of texture. A specification folder holds actual samples, from marble-like creams and tans to dark granite looks. Surface Protection Industries Co., Los Angeles.



08. Curtain wall finish
'luorodize" coil/spray coating is said
preserve the esthetic integrity of
uminum's metallic sheen while elim-
ating the performance drawbacks
anodized aluminum. A brochure
mples all colors and compares the
ish with anodizing as to chemical-,
rrosion-, and UV-resistance. The
lspar Corp., Garland, Tex.



409. Multicolor in stock
This maker's Express Colors is a selection of multicolor wall finishes—faux stones, solids, and four-color designs—grouped to harmonize across a wide color range. A fold-out chart samples all color and texture choices, available in stock. Polomyx, North Billerica, Mass.



10. High-gloss enamel
"wet look" waterborne enamel,
irrolac-WB is said to combine the
gh gloss, hardness, adhesion, flowa-
ity, and durability of alkyd enamels
th the low-odor and other benefits
latex products. It can be used
loors and out on a variety of sub-
ates, including metal. Devoe &
ynolds Co., Louisville, Ky.



411. One pass, five colors
Vitricolor, a ter-polymer, low-odor polychromatic coating system, offers a range of five distinct colors within one seamless wall texture, applied in one application. Suggested as a graffiti-resistant, cost-effective alternative to vinyl wallcoverings. Vitricon, Hauppauge, N. Y.

Continued on page 131

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Teaching Overseas The Faculty of Engineering and Architecture at the American University of Beirut (AUB) in Beirut, Lebanon has openings beginning October 1994 for teaching and research in the following fields: Urban Planning, Architecture, and Graphic Design. Applicants in Urban Planning should have a Ph.D. degree, while applicants in Architecture and Graphic Design should have at least a Master's Degree. Applicants should have a minimum of three years of professional and/or teaching experience and are expected to teach graduate courses in Urban Planning and undergraduate courses in Architecture or Graphic Design and be active in research. Salary and rank are commensurate with qualifications. Applications should include a complete resume and the names and addresses of three references. They should be sent air mail before the end of January 1994 to the Dean, Faculty of Engineering and Architecture, American University of Beirut, Beirut, Lebanon, with copy to the American Univer-sity of Beirut, 850 Third Avenue, 18th Floor, New York, New York 10022. The American University of Beirut is an Affirmative Action/ Equal Opportunity Employer. U.S. passports are presently invalid for travel to, in or through Lebanon, and for residence in Lebanon, by order of the Department of State, and therefore applications from individuals who would travel to or reside in Lebanon on a U.S. passport cannot at this time be considered.

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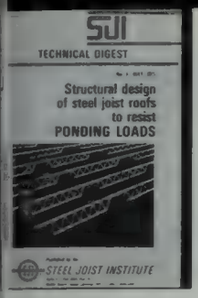
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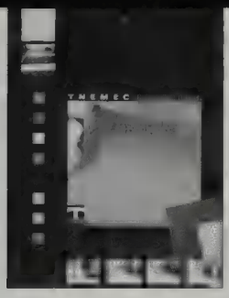
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2. Steel-joist data
- $10, the Steel Joist Institute will
id a 34-page technical guide to the
ection of steel joists for flat roofs
esist loads resulting from accu-
lated water, revised to reflect
rent K-series joists. Data consid-
two framing condidions, and
cribes how accounting for cam-
and pitch reduces ponding. Steel
st Institute, Myrtle Beach, S. C.



413. Monolithic flooring
A color brochure highlights high-performance flooring systems for many commercial and factory applications, from light-traffic areas to badly degraded floors that need resurfacing. Color options are illustrated for all flooring, including decorative quartz-aggregate materials. Tnemec Co., Inc., Kansas City, Mo.



4. Exterior restoration
inder prepared for the architect,
ility manager, and building owner
ers masonry, stone, concrete,
lants, and waterproofing, as well
uilding cleaning and approved
terials and application techniques.
t: $49.95. Order form describes
volume in detail. The Sealant,
terproofing & Restoration Insti-
e, Kansas City, Mo.



415. Building-materials CAD
PC-based, AutoCAD-compatible software, USG ACTION V.2 runs under Microsoft Windows. It contains CAD and specification libraries, fire- and sound-test databases, and information on gypsum drywall systems, ceiling and floor systems, and related products, with access to on-line technical assistance. United States Gypsum Co., Chicago.



6. Rubber flooring for arenas
application-specific brochure
strates rubber flooring installa-
s at large stadiums, such as the
isiana Superdome, and race-
ks, arenas, and other sports
lities around the country. Endura
oring, Waltham, Mass.



417. Snap-together railings
A catalog on the STAR system describes aluminum fences and railings that assemble without fasteners or welding. Interchangeable parts are said to allow for unlimited fence and railing styles, from stock, in multiple color schemes. The on-site snap-together system is particularly suited to stair railings. S.T.A.R. System International, Ltd., Richmond, B. C. ■

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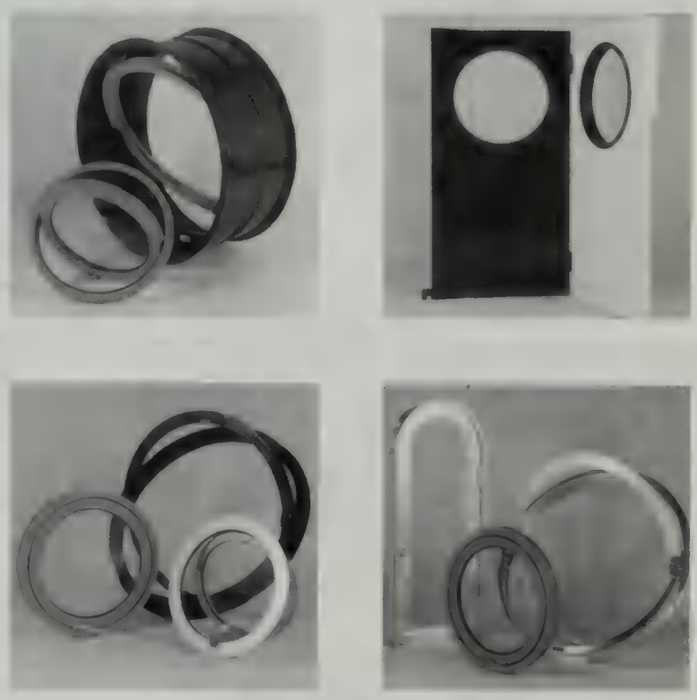
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1. Title of publication—Architectural Record (combined with American Architect, Western Architect and Engineer).

Publication number: 132-650

2. Date of filing—October 1, 1993.

3. Frequency of Issue—Monthly. Number of issues published annually: 12.

Annual subscription price: $54.00.

4. Complete Mailing Address of Known Office of Publication—1221 Avenue of the Americas, New York, NY 10020.

5. Complete Mailing Address of Headquarters of General Business Offices of the Publisher—same as above.

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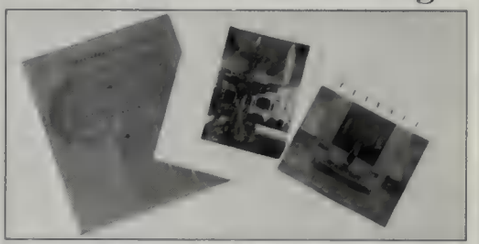
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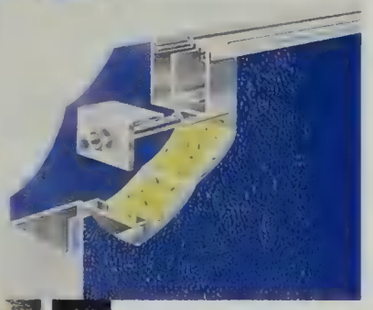
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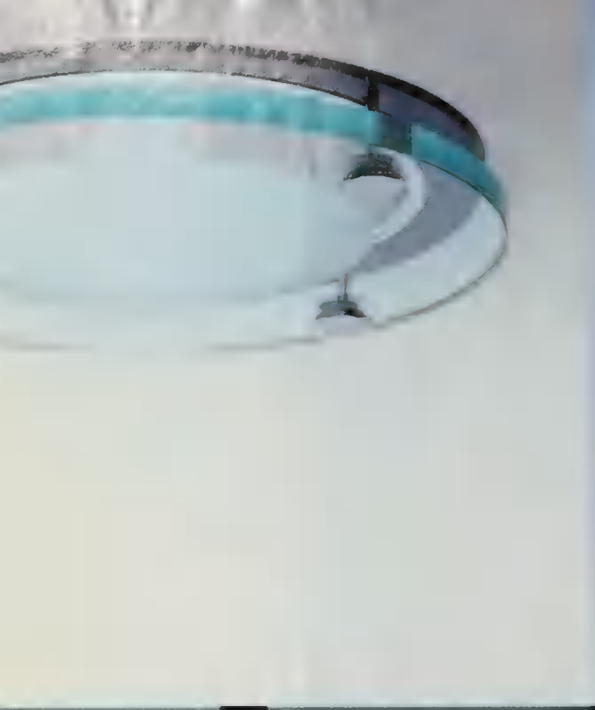
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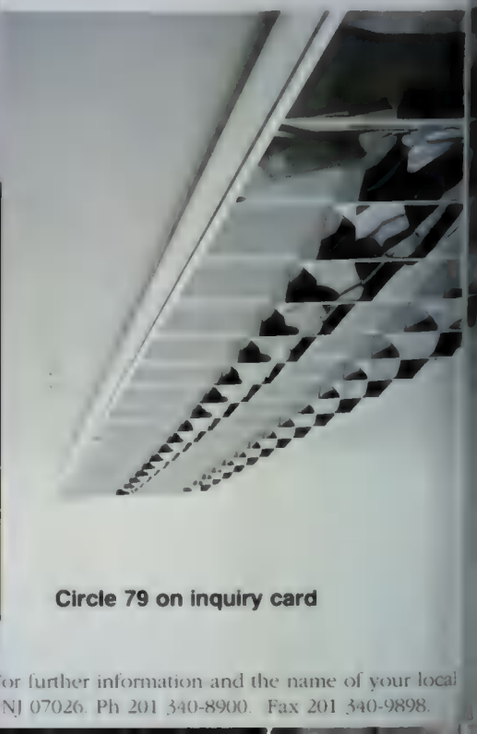
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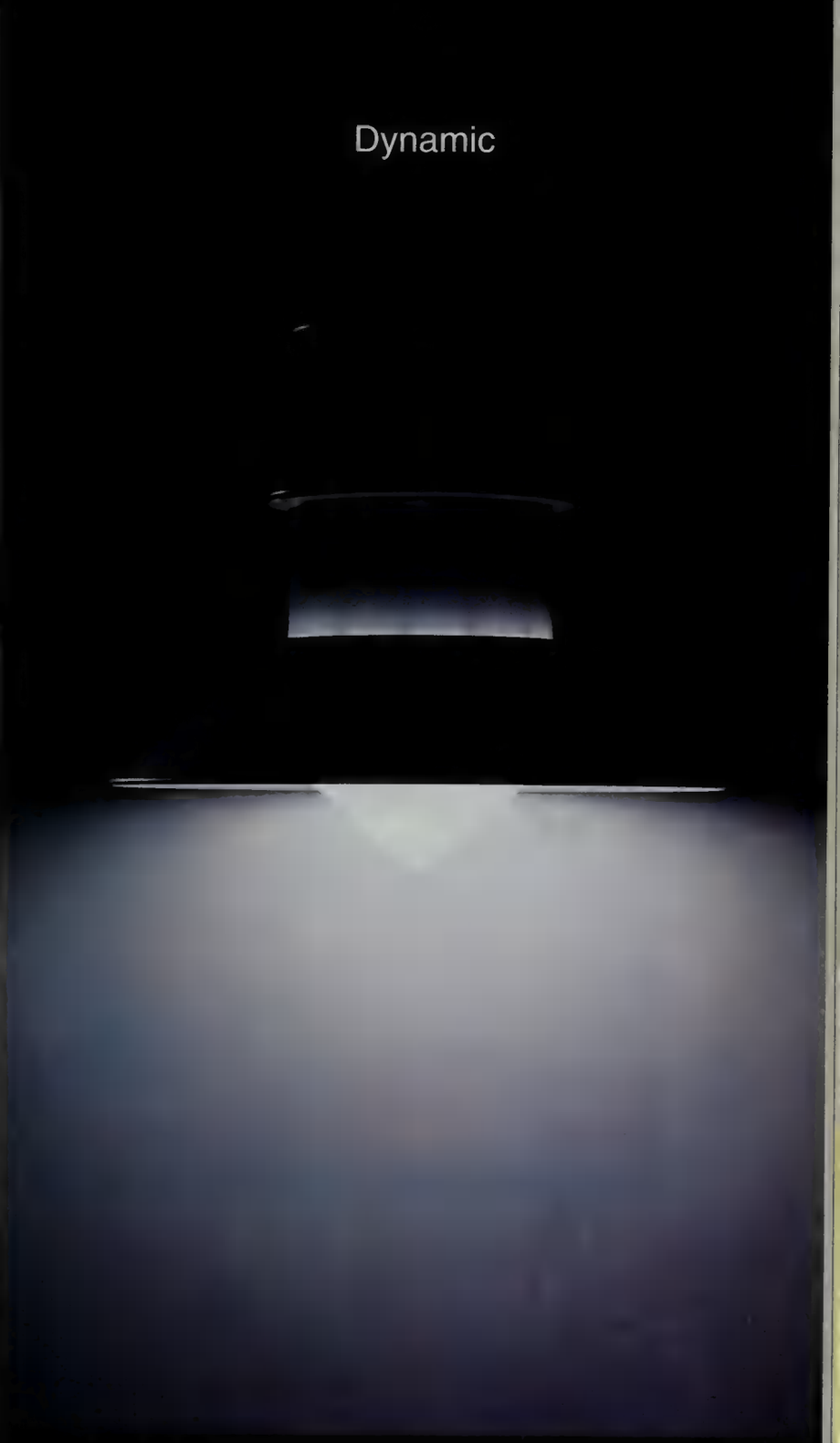
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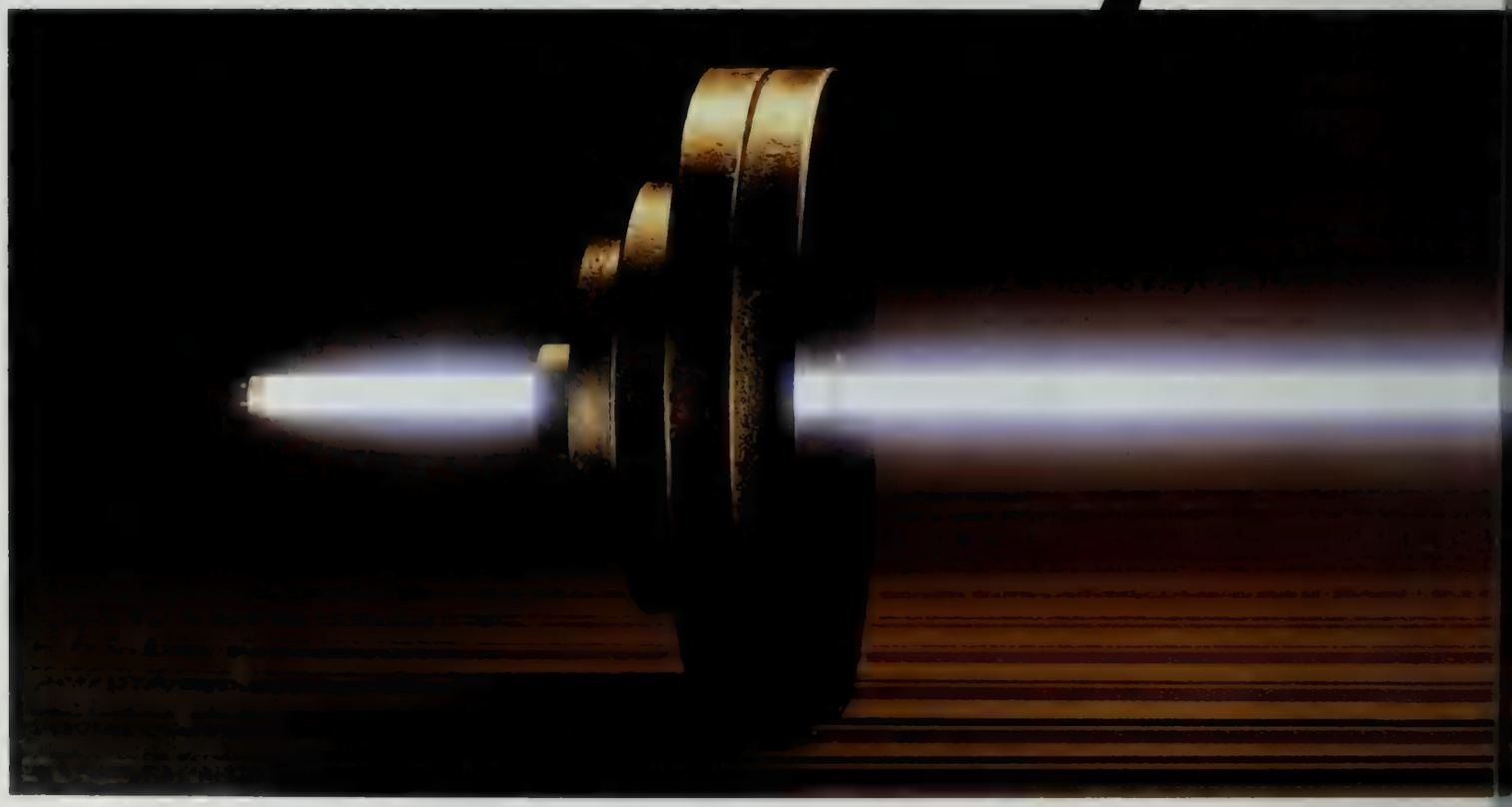
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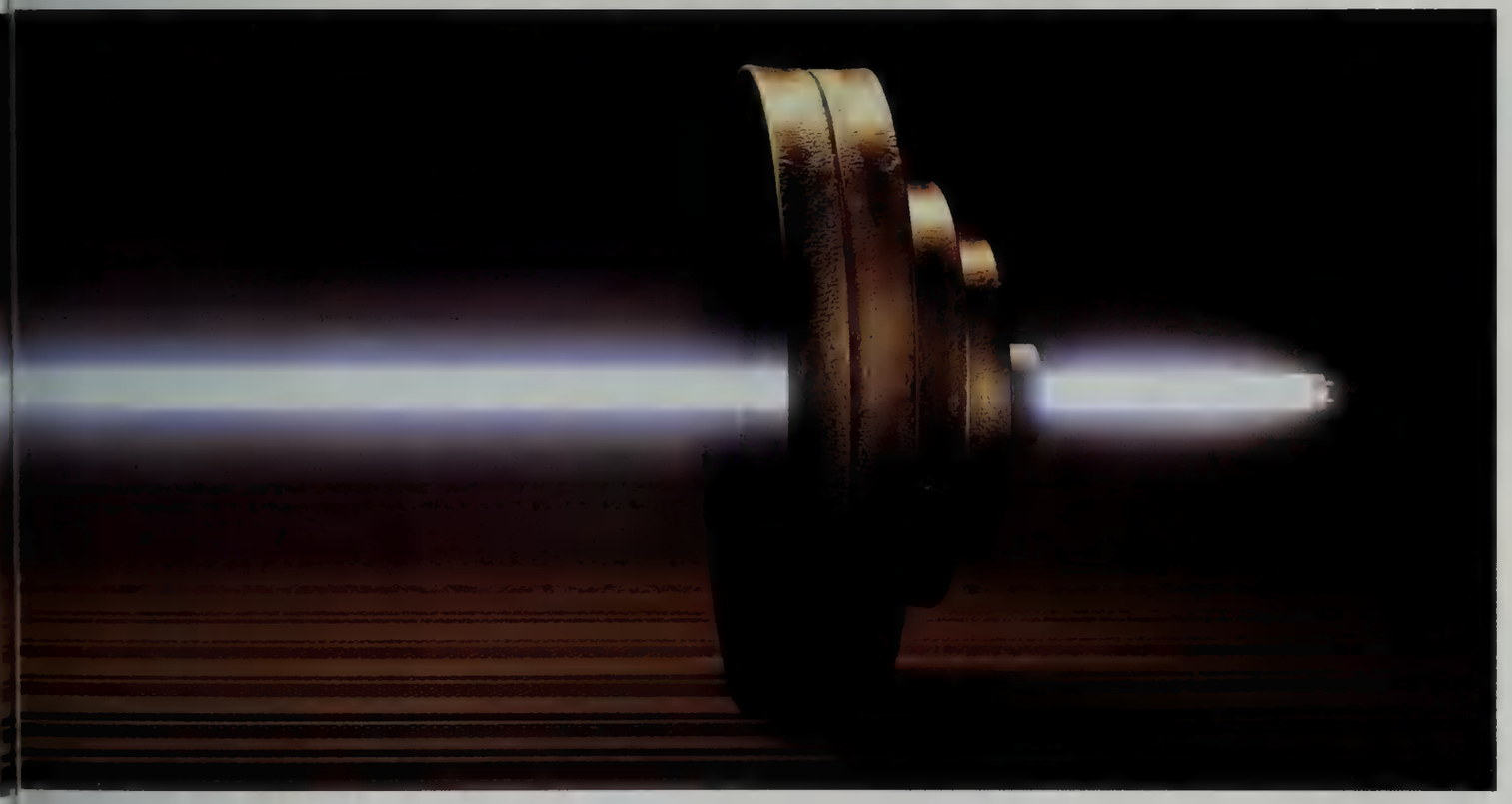
Not Even Charle
Something So T



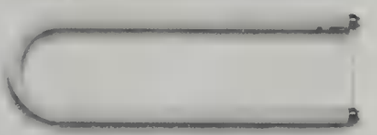
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alifornia

ighting Upgrade Fits University Church 'or Its Multiple Missions

anford Church is the chapel of Stanford niversity, but like many of its kind, the ilding is sized and appointed in a way that ould do honor to a bishop. It serves a vari- y of denominations for worship, and the tire campus for concerts, theatrical produc- ns, assemblies, lectures, major speeches, d a continuous procession of weddings. "It used almost every day," says Paul Helms, ose firm PHA Lighting Design collabo- ed with Hardy Holzman Pfeiffer on its storation. The program began as an earth- ake-driven project to cure structural oblems, but well into the process it became ident that the most successful fund-raising peals would be those that promised a sig- icantly upgraded appearance.

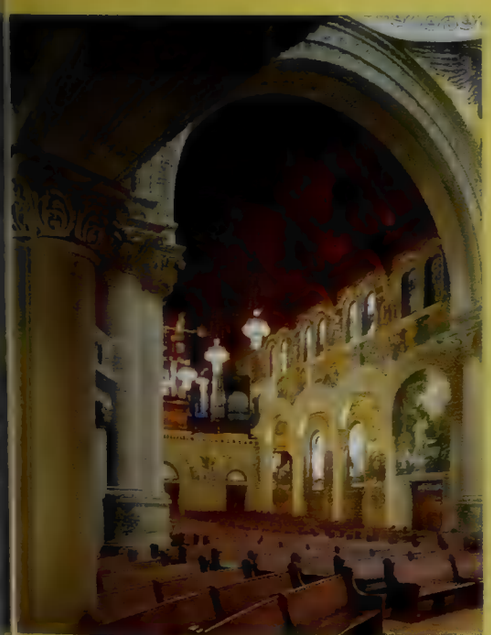
e 1913 church had been one of those vin- ge institutions that yielded to modernity ly so far as electrifying the chandeliers; jor events required temporary fixtures, es straggling all over the floor, and gen- tors grumbling along outside. "There s no lighting to accommodate anything t quiet, dark, private space for worship," s Helms. After jointly developing a program to capture architecture and ornament and serve widely varying events from built-in sources, HHP gave PHA a single simple directive: "Put in anything you want as long as we can't see it."

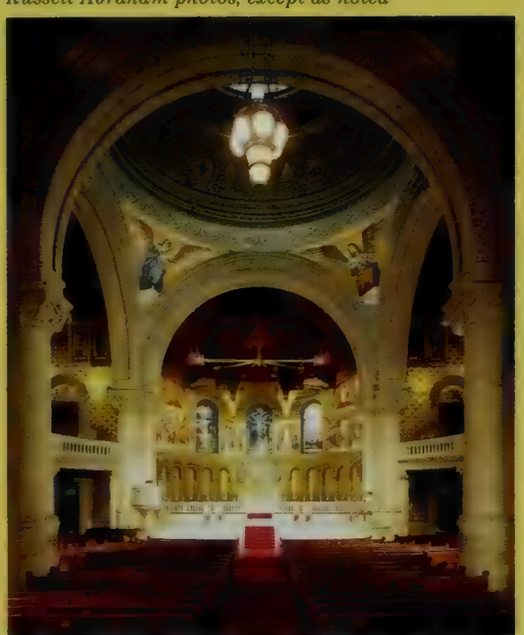
To widen the nave by visually incorporating the side arcades (bottom left), Helms used light sources on the shelves that the capitals create at the back of the columns; light bounces off the painted arcade ceilings onto both the arches and the back walls. Sources tucked into the nave cornice erase shadows that concealed the wood ceiling's color and grain. Vertical lighting booms on either side of the organ loft (bottom right) illuminate the choir and organ with angled light concealed behind the structure. Light pipes placed behind the chancel arches, and vertical booms trained on the chancel (bottom center) from left and right mezzanines, overcome shadow and limit the glare that confronts participants facing the congregation/audience, while highlighting the chancel mosaics (reflected in altar cross, top center). Quartz halogen PARs used throughout enrich the perception of warm sandstone, gold mosaics, and reddish woods.

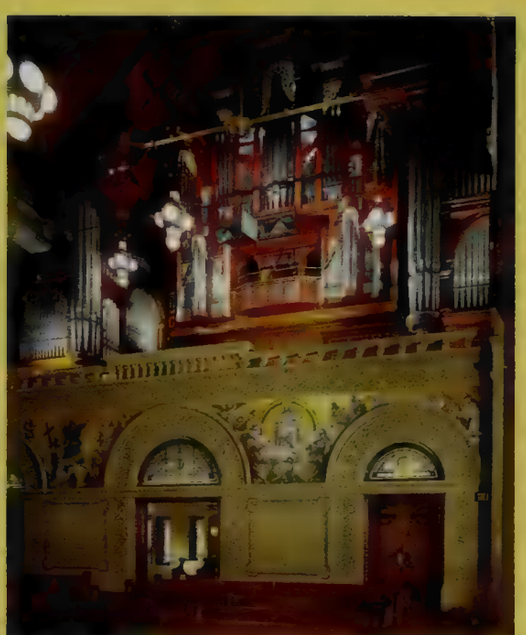
Most events need only the PARs lamps on 16-scene pre-set controls cued for intensity and instrument selection, but theatrical fixtures can be plugged in at will. Most maintenance is done from a low stepladder because, as Helms points out, "The university has one guy for many facilities." ■



Russell Abraham photos, except as noted







California

An Enriched Environment for the Aging Eye

Chas McGrath photos





As health and eyesight fade, aging people begin to require more mechanical and technical support than the general population. They also have a seldom-acknowledged need for the psychological reinforcement of attractive and stimulating surroundings. At the luxury Stratford in San Mateo, which combines medical care, communal hospitality amenities, and 65 condominium apartments, Seccombe Design Associates achieved the visual contrast the aging eye requires by using warm wood finishes, a rich fabric palette, and a lighting design by firm principal Laura Seccombe, Richard Osborne then of Luminae Souter, and Naomi Johnson Miller, at the time a partner at Architectural Lighting Design and now manager of design applications at the Lighting Research Center at Rensselaer Polytechnic Institute. The goal was relatively high, glare-free, uniform light levels in all areas, with no sacrifice of visual interest. Almost all the spaces combine direct and indirect lighting to minimize extreme contrasts in the field of view, while providing high task-lighting levels and occasional highlights to avoid blandness. In the communal living room (left), the ceiling is composed of 2800K neo coves with recessed PAR30s centered in each coffer; the neon was chosen for long life, dimmability, and energy efficiency. Th main floor corridor (right) uses recessed PAR30 halogen downlights, adjustable MR16 accents trained on artwork, and com pact fluorescent wall sconces and pendants PAR20 downlights built into the pendants create an even path of light on the floor, while the uplights wash out shadows on su faces and faces. ■

Maryland

A Jukebox Serenade in Neon

The Silver Diner at Towson Town Center revives "the good old days" with a generous application of neon, incandescent downlighting, and MR16 accents reinforcing a mood created by glass-block walls, stainless steel sunburst panels, ceramic-tile floors, and period laminates. "The inten- ," says interior designer Charles Morris , "w rom the reflected ceiling hite and pink neon washes a ng-pattern plastic laminate. rst thing we try *not* to cut ' says Mount. ■





riefs

rnessing the sun

adlees department store in Medford, ss., is trying out roof-mounted solar cells power its lights. Sourcing will switch tomatically from grid to solar when the n shines, says William Berg, who is re-rching the process at the University of ssachussetts at Lowell. With tax credits l utility rebates, system-supplier Osram imates a five-year payback.

ppy ending for Chapter 11

nture Lighting International, the Solon, io, metal-halide lamp manufacturer, has tructured its debt with assistance from Captial, and plans to concentrate on n-fixture-rated products and retrofit kits.

npact standards

e Northwest Residential Efficient Appli-e and Lighting Group, an association of ities and government agencies in Idaho, ntana, Oregon, and Washington, has pted the Green Seal environmental stan-d for compact fluorescent lamps, joining Sacramento Municipal Utility District l PG&E utilities. Green Seal is a Wash-ton, D. C., independent non-profit that s norms for efficiency and performance, l toxics limits in production and packag-. The compact standards were developed pen review with manufacturers, consum-, environmentalists, utilities, and ernment agencies; Underwriters Labora-es was the primary testing contractor. en Seal has so far approved six specific pacts—GE electronic 20W triple Biax, 15W and 20W double Biax; and Lights merica 2020TP, 2022TP and 2030TP. lities, however, use the standards as man-cturer specifications for their demand-management programs.

re will be a test

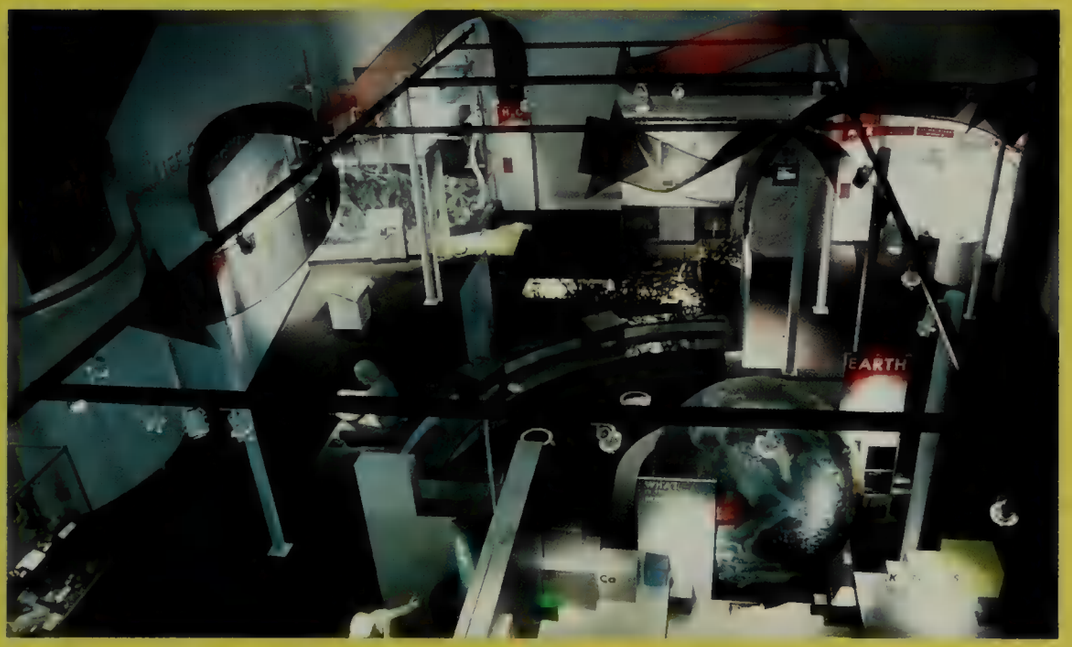
15-module "ED-150: Intermediate Level hting Course" is available from IESNA, Wall Street, 17th Floor, New York, N. Y. 05-4001, 212/248-5000. The first technical wledge exams based on the course will ffered at 17 U. S. and Canadian sites on uary 29 and July 16, 1994. Contact Ameri-College Testing, POB 168, Iowa City, a 52243, 319/337-1317.

npetition

uary 31, 1994 is the deadline for the NY Richard Kelly Grant. Contact: IES, Wall Street, 17th Floor, New York, N. Y. 05-4001, 212/248-5000. ■

Missouri

Seventeen Different Ceiling Heights Complicate Museum Lighting



The St. Louis Science Center showcases science, technology, and the environment in more than 500 distinct display elements, with contradictory lighting needs, housed in 11 galleries with 17 different ceiling/mounting height conditions ranging from 8 ft to 65 ft—as many as five different heights in a single gallery—to bedevil the lighting designer. To light the two-tier ecology and environment gallery, Katherine Abernathy of Randy Burkett Lighting Design installed low-voltage 120W PAR64s in the 4-ft stem-mounted movable track that the builder provided in continuous U-channels on the 65-ft ceiling, along with 10-ft-on-center power outlets to provide an endless variety of lighting positions. At the lower level, track-fitted pipe frame secured to the floor holds low-voltage PAR36s and line-voltage PAR38s in standard off-the-shelf fixtures. Throughout the museum, louvers, lenses, color filters, and other control accessories tailor the instruments to each display without disturbing the signature mood of each gallery, or interfering with adjacent exhibits in the same gallery. ■

Texas

Feast for the Eyes at Houston Nutrition Center

Lighting consultant Michael John Smith derived the dramatic ambience in the evaluation area at Hermann Hospital Nutrition and Human Performance Center almost exclusively from shallow-recessed MR-16 adjustable accents—the counter glow is downlight bouncing back up through the floating glass surface. Task lighting for the rear desk is 12V incandescent festoon strips hidden in the bottom of overhead cabinets. Triple MR16 pendants combine up- and downlighting, while recessed AR111 metal reflector halogens wash the metal walls. ■



Site Family

310. Staff's Architectural Outdoor Lighting (AOL) series luminaires are now made in Highland, New York, from designs developed by Se'lux in Germany and widely installed in Europe over the past few years. The landscape fixtures share a new optical technology as well as a contemporary yet user-friendly appearance. Though white-light metal-halide sources are now the most popular in both European and American applications, the AOL optical selection also includes polycarbonate ring refractors developed specifically for use with economical compact-fluorescent sources and the new, quick-start cold-weather ballasts. These refractors work like prisms, directing any given angle of light as required and diminishing the worst of the glare at critical viewing angles for each fixture. Mirror, white-finish, and molded borosilicate-glass refractors can be specified for the light-distribution requirements of other sources. AOL luminaires come in over 100 design and performance configurations, with many models (six are pictured) available in single pole-top, cluster, wall-mount, and bollard options for fixture-style uniformity throughout the site.



1



3



4

An unusual shape that resembles a trainman's lantern, Saturn (**1**) establishes pedestrian scale in either contemporary or more traditional landscapes. Like most of the luminaires, a self-illumination feature establishes the shape of the fixture when it is lit at night. Saturn also comes in a more hat-like shape, minus the arched "handle." Pendel (**2**) is said to provide superior light distribution; a double-lamp feature allows higher illumination during peak hours, cutting back to a one-lamp security-light level to save energy. Shown here in a wall-mount version, the MTR fixture (**3**) also comes in pole-mount and bollard versions. Globus (**4**) is two hemispheres of clear or opal-finish acrylic or polycarbonate. Series 200 Bollards (5) [illegible] distinctive fluted style; all are [illegible] resistant extruded alumi[illegible] to the small-scale AOL [illegible] an aerodynamic shape [illegible] that create a form-[illegible] for large-area and [illegible] also offers the [illegible] option. STAFF [illegible] N.Y.



2



5

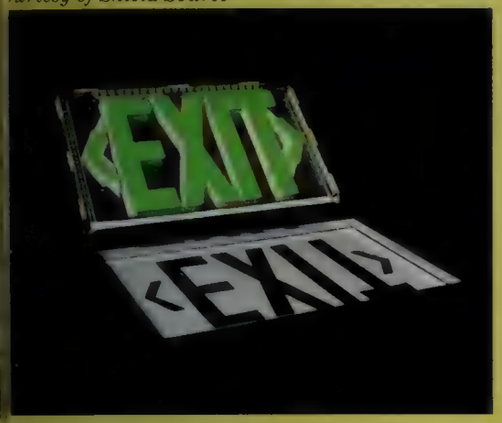


6

Exit Signs: The Best Way Out

One of the least noticed lighting fixtures might also be the one that saves your life. Edge-lit LED signs are one good solution.

urtesy of Shield Source



y Lindsay Audin

an emergency, an exit sign might be the ly help you get in finding your way to fety. Many designers treat them as an terthought, however, specifying the eapest model to contain job costs. Energy ntractors also are often guilty, installing trofit kits that may save watts but could st lives if visibility is seriously compro- ised. Fortunately, there are now options at provide good visibility while signifi- ntly cutting energy and maintenance sts.

hat Are the Choices?

it signs come in six basic types:
ncandescent (with two 25W T-lamps)
luorescent (tubular and compact)
elf-luminous (using tritium gas to excite osphors in glass tubes)
lectroluminescent (a dielectric surface ows when electrified)
hotoluminescent (emitting light when ex- ed by ambient illumination)
ight-emitting diodes (LEDs shine out rough a diffuser or else into the edge of an rylic sheet)
trofit kits that convert one of the above to other are also available.

hat are the issues?

hile most signs work reasonably well, re- at events and studies exposed some rather rious problems often not considered by hting designers:
amp maintenance
isibility in smoke conditions
nergy and maintenance costs

ndsay Audin is the energy manager for lumbia University.

Sign surveys show a percentage are dark because of lamp failure, while others provide insufficient visibility during a fire or blackout. Exit signs are also a covert guzzler of electricity because they are on 24 hours a day.

Few facilities place a priority on replacing burnouts immediately—unless expecting a visit by the fire inspector—so systems that use a replaceable lamp may be vulnerable to poor maintenance. Signs that use no lamps don't always fare much better. Electroluminescent signs are good for about eight years, and some have been prone to early failure due to intrusion of moisture into the dielectric surface. Self-luminous signs lose about half their brightness in the first six or seven years, and disposal is a problem due to their slightly radioactive content.

Some types provide much greater luminance, generally a plus during smoke conditions. Self-luminous, electroluminescent, and photoluminescent signs do not provide the brightness of incandescent, fluorescent, or LED signs. Those with stenciled lettering, instead of lettered diffusers, are more visible in smoke. Some signs do not meet 1991 NFPA Life Safety Code luminance requirements (except by special exemptions), or regulations in larger municipalities (such as New York City), even though approved by other electrical codes.

Are retrofits a good solution?

To cut the energy and maintenance costs of incandescent signs, many facility managers and energy contractors are replacing the guts of such signs with fluorescent or LED conversion kits. Available from at least a dozen vendors, they include most components, and are often a cost-effective way to extend the time between burnouts, while cutting wattage by 75 percent or more.

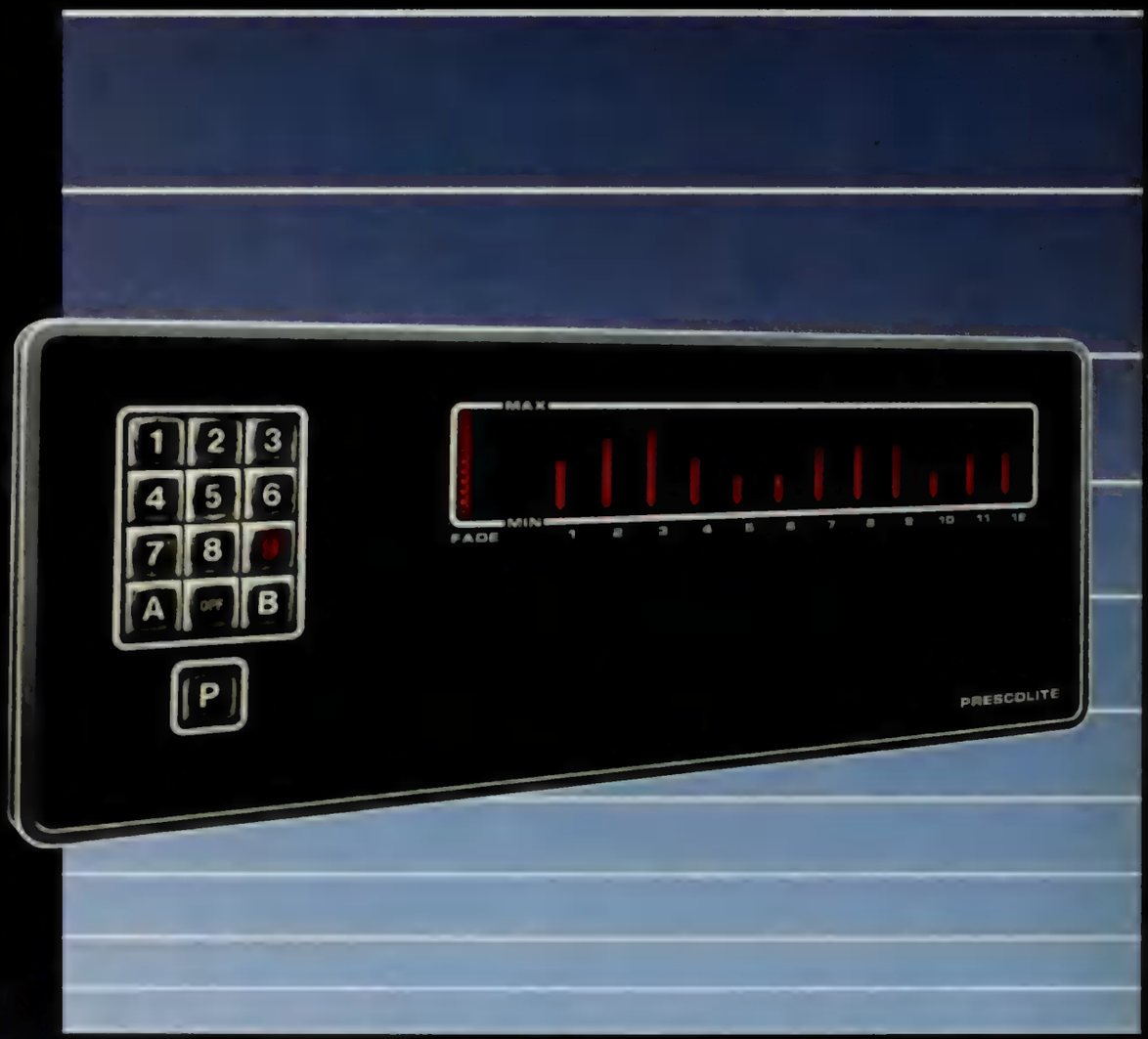
But watch out for the problems sometimes hidden in these retrofits, especially when all existing signs are not identical:

- Size. Not all kits fit all fixtures; sometimes internal obstructions or dimensions make installation difficult, if not impossible.
- When installed over a number of years, signs may have been connected to whatever circuits were most convenient. Unless sign voltage is known with certainty, specify kits with taps for both 120 and 277 volts.
- Downlighting. Some signs are designed to provide downlighting for emergency egress, so watch that the kits don't cover the lens on the fixture bottom.
- Socket compatibility. Unless all signs were installed at the same time, sockets may vary from sign to sign. Any conversion kit should contain all types required.
- Vibration sensitivity. When signs are located where vibration is common, compact-fluorescent lamps mounted diagonally may loosen in that orientation.
- Luminance in large or two-sided signs. Many conversion kits fit such signs but lack code-level luminances because they are designed for a single-sided sign with 6-in. lettering, not a two-sided one with 8-in. lettering.
- Flashing capability. Ballasts in fluorescent conversion kits are not designed to flash their lamps so, where existing, this capability may be lost as a result of retrofitting.
- Compatibility with emergency batteries. Many batteries will supply sufficient power to start a fluorescent lamp but were designed to maintain the glow of an incandescent filament, not a fluorescent lamp. So, fluorescent conversion kits may not remain lit for the 90-minute minimum required by many codes, when connected to existing batteries.

The best answer

Check out the newer, edge-lit LED signs (photo, top left) now available from two vendors. From the standpoint of luminance, life cycle, and energy costs, they really stand out, especially in the dark. While meeting most (if not all) codes, these signs are warrantied for at least 20 years, require no relamping, use little power, and are easily visible even at wide angles. Prices have come down significantly, and special options such as flashing and audible signals are available. While more expensive than others, few problems occur during installation, energy savings are maximized, visibility and esthetics are very good, sign maintenance is practically eliminated, and many utilities provide a nice rebate for the equipment. ■

Specify Performance



Series 7™ Preset Dimming Control

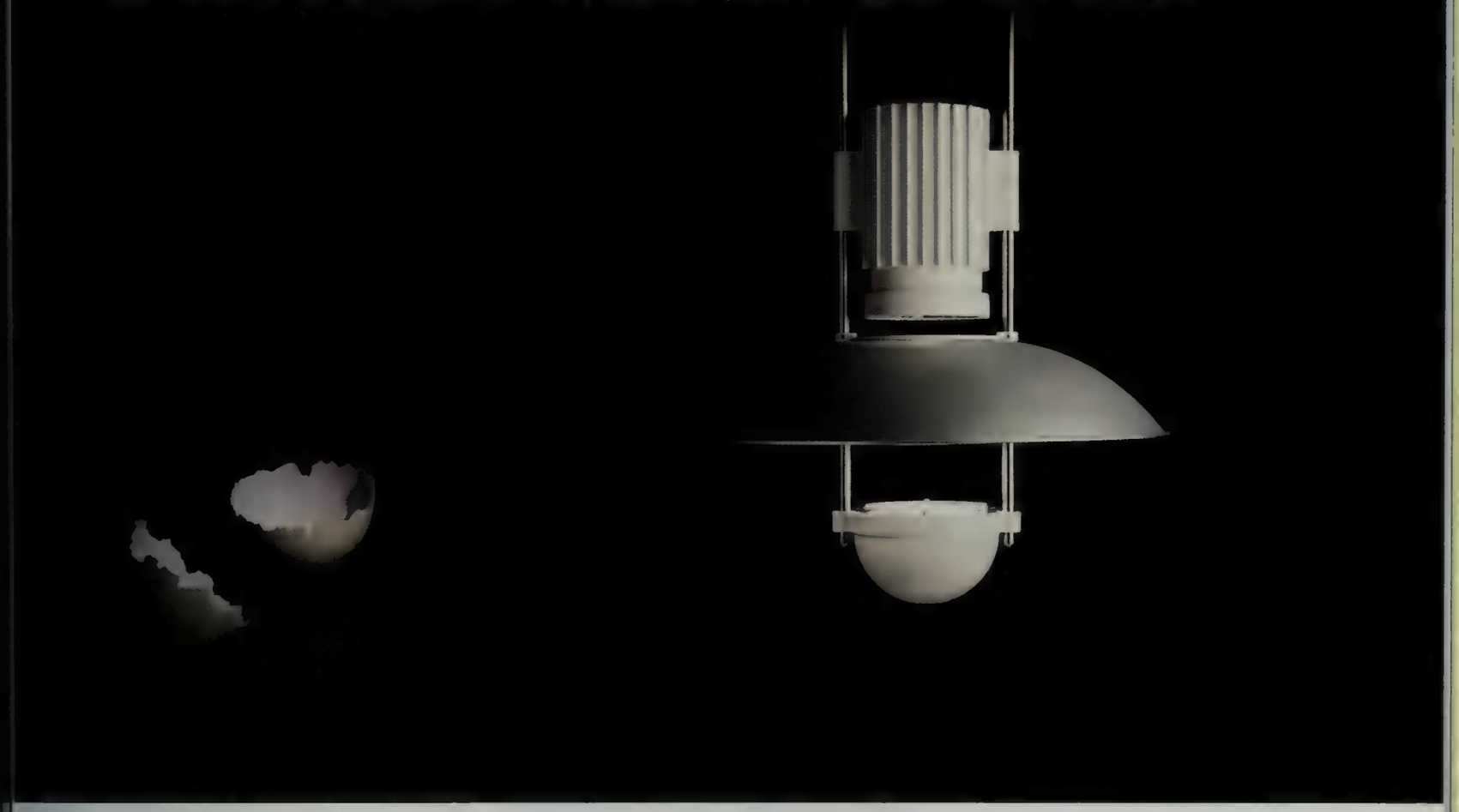
Series 7™ is perfect for restaurants, churches, conference rooms, hotels and other settings that require architectural preset dimming control. Electronic preset controls are hidden behind the attractive front panel and LEDs indicate the level of light intensity for each channel. This attractive yet compact control provides recall of up to eleven fully programmable lighting scenes. The **Series 7™** is available in either six or twelve channel capacity for each scene and controls most types of lamps.

PRESCOLITE CONTROLS

USi LIGHTING

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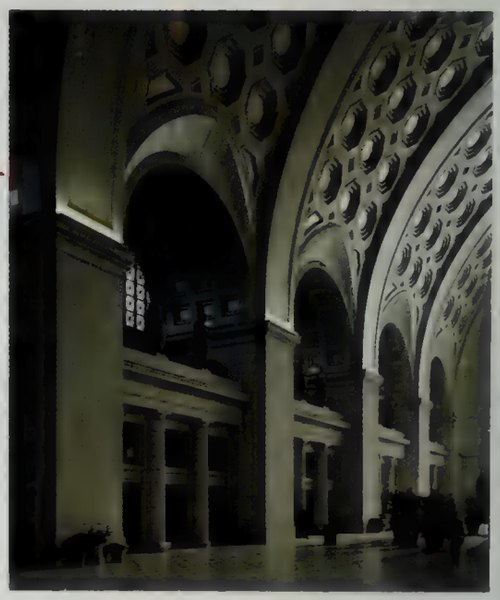
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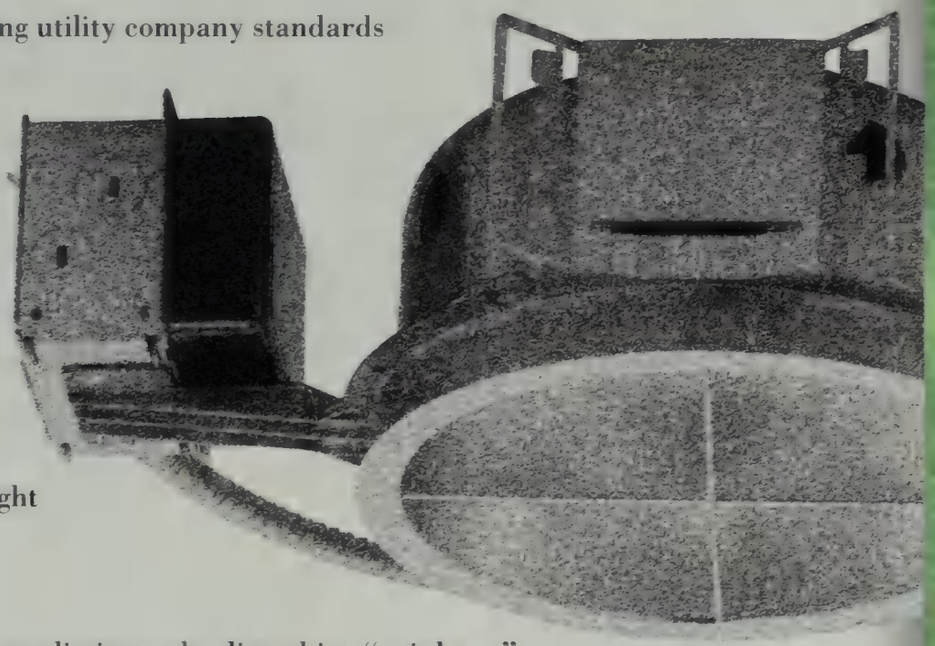
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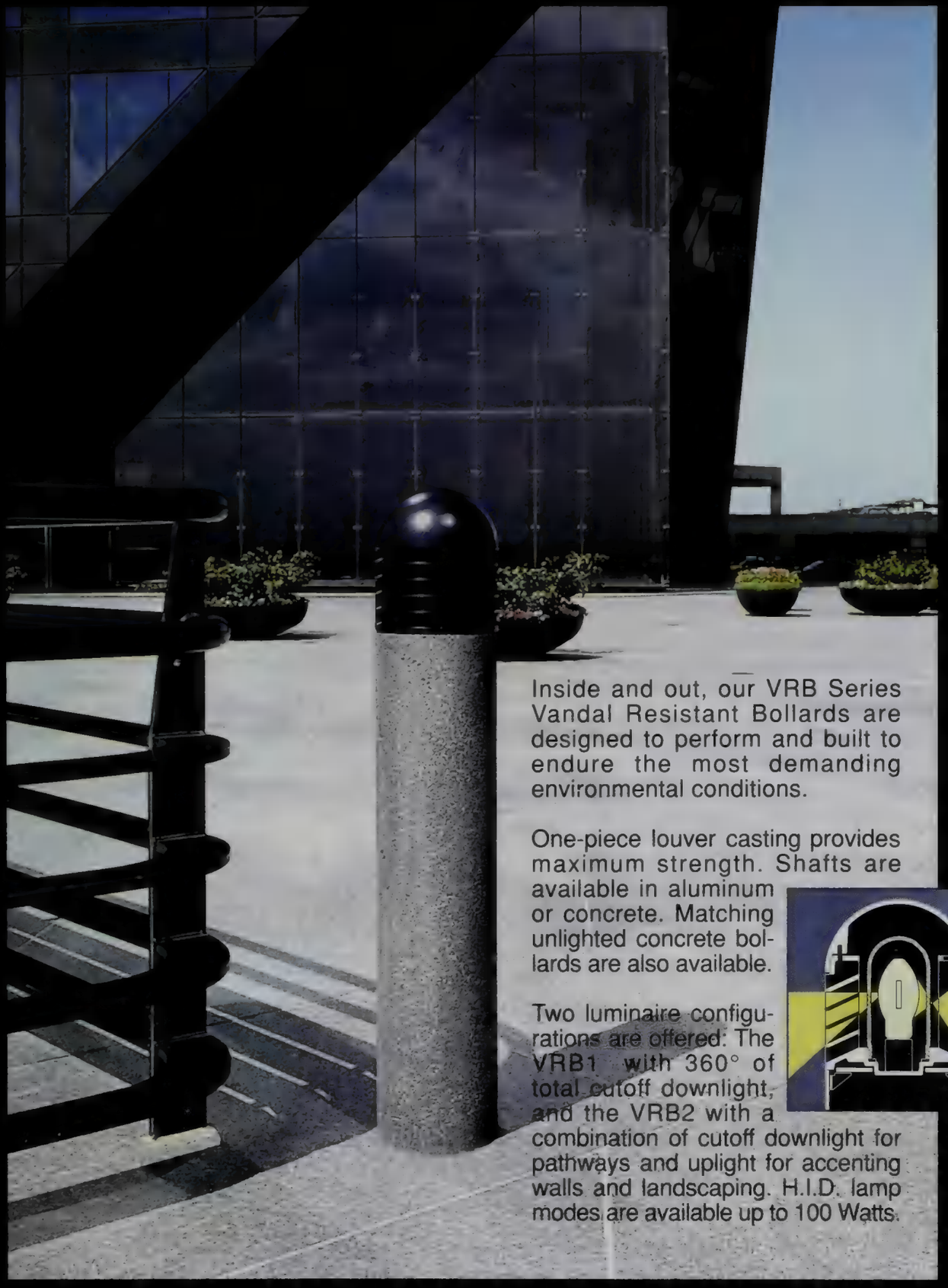
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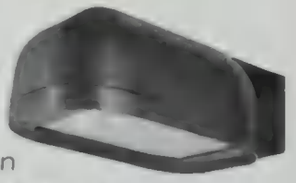
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Fill-Lighting Versus Installed: The Editor's Dilemma

One of the great privileges editors at ARCHITECTURAL RECORD have is being able to work with some of the world's finest architectural photographers. You can probably imagine the thrill of opening a box from someone like Balthazar Korab, who took this month's RECORD LIGHTING cover photo of the rotunda of the Michigan State Capitol, and getting to see his originals with your own eyes. It's marvelous.

Taking photos for a magazine that is concerned with the illumination of space presents a unique problem for photographers, because photographic film, for all its impressive capacity for simulating reality, doesn't record light exactly as the human eye sees it. For one thing, the eye can perceive a far greater range of illuminance levels than can film under the same conditions. And the eye does a much better job of compensating for weird variations in the color spectrum from sources like fluorescent and high-pressure sodium than film, which is manufactured to see either day- or tungsten light as "normal." Photographers must use fill-light and color-correcting filters so that an environment is rendered on film as it would appear to the naked eye. It is almost impossible to photograph interiors without these aids.

The challenge for the editors of RECORD LIGHTING is to judge when the photographer's lighting outshines the work of the lighting designer who lit the space. To decide, we examine each photo to judge if the lighting system could plausibly deliver the light captured in it. A burst of light coming from behind a sofa in an otherwise downlit room is usually a dead giveaway that lighting has been added, especially if the lighting designer didn't mention sofa-uplighting as part of the solution. Bright reflections that seem inappropriate given the light sources used, such as those on the columns on page 26, are also usually a clue that fill light is leaving an impression on film that would not be seen by one viewing the space.

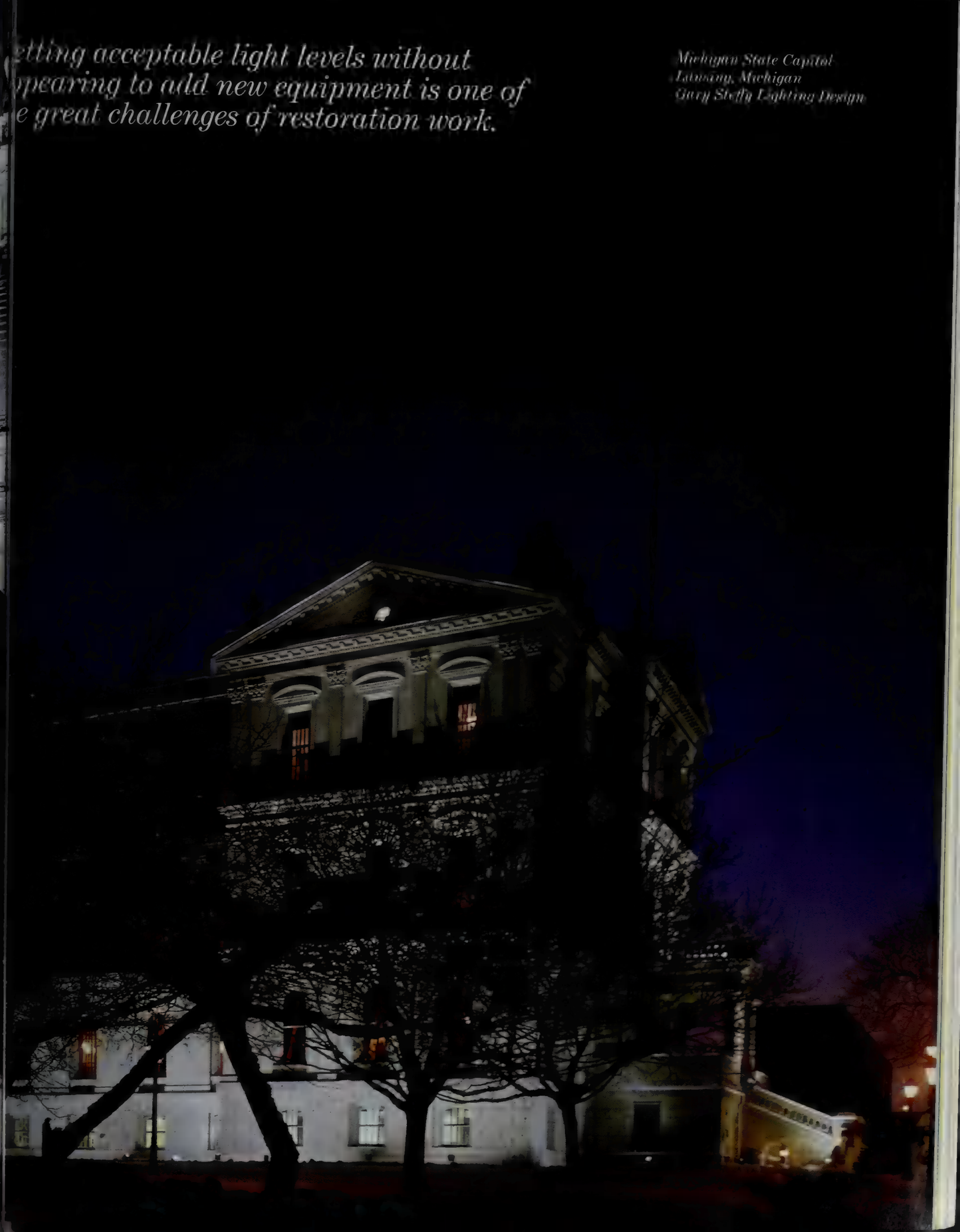
Early in my career as a lighting magazine editor, I threw out a lot of projects because of their obviously fill-lit photography. Today, I feel I have to accept it as a necessary evil if the choice is either to publish a project with a fill-lit photo, with some explanation if the additional lighting is blatant, or publish nothing and deprive the reader. As always, the best way to understand how a project was lit by the designer is to visit the space. Otherwise, look at the photos and read the text to find out. Good photography reveals the lighting designer's talent, while the photographer's should go unnoticed. *Charles D. Linn*

Capitol Improvements



etting acceptable light levels without
ppearing to add new equipment is one of
e great challenges of restoration work.

Michigan State Capitol
Lansing, Michigan
Gary Steffy Lighting Design





'althazar Korab photos



Close

ightnesses on walls; fill light. Lighting
igner Gary Steffy notes that one of the
blems with period lighting that uses
be-type diffusers—like those shown in
photo of one of the grand stairways (op-
ite)—is that while the light sources
mselves are very bright, not much of the
it they produce actually reaches architec-
al surfaces in the field of view. However,
lls and ceilings usually seem brighter af-
a restoration is complete, because
ewed finishes are more reflective than
ore, even when they start out relatively
k, like the blue ceiling in the photo.
ie fill light has been added by the photog-
her to approximate what a person would
if they visited the building. Except for
very bright reflections at the base of the
umns and balustrade, the brightnesses of
walls and ceiling as photographed are
dered accurately, according to Steffy.

The Michigan State Capitol started out like most restoration projects: a beloved edifice gone bad from decades of neglect, low-bid improvements, and insensitive modernizations. Starting in 1979, architect Richard Frank was largely responsible for developing the restoration plan, and Gary Steffy's office was called upon to redesign the lighting of the rotunda, upper corridors, and exterior.

"The Michigan State Capitol opened in 1879, nine months before Edison invented the electric lamp," says Steffy, "and the building was illuminated by 1,700 gas burners—replaced in 1901 with electric-light fixtures. By the mid-1960s the Capitol had fallen into complete disrepair, with intermediate floors added into office areas, lay-in ceilings, and a lot of the architectural character getting thrown out or covered up with plasterboard and paint.

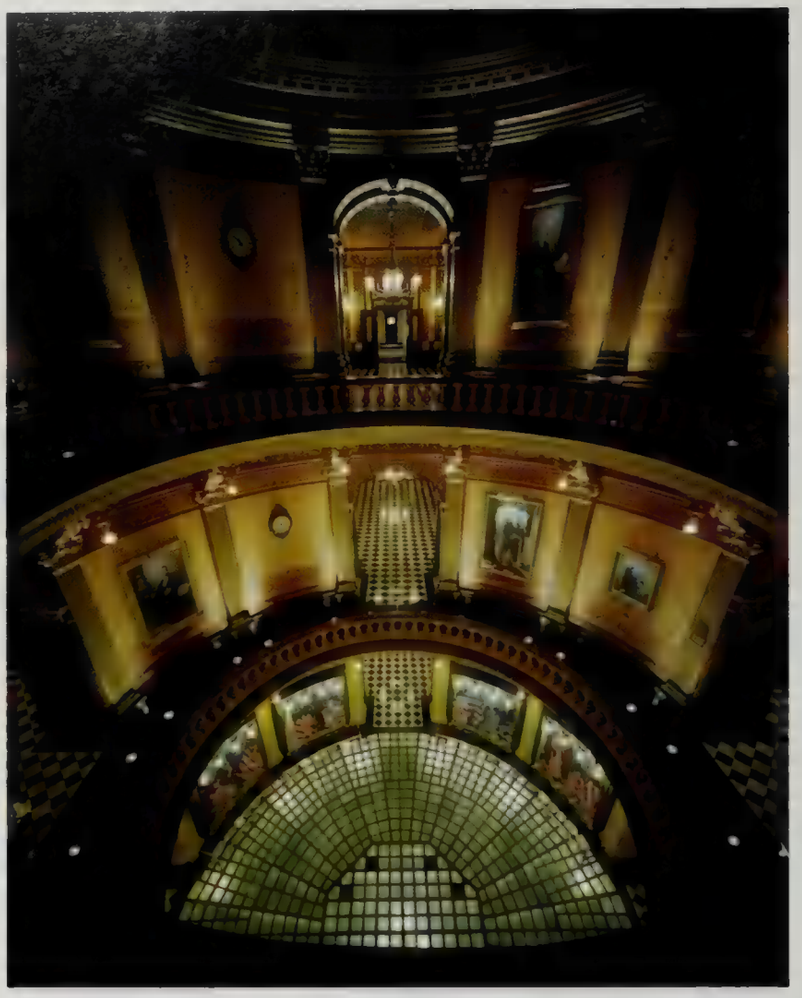
"But for the lighting, there was a lot of good stuff," Steffy continues, "some of the original luminaires were still around, and could easily be replicated. But people were very concerned that when the Capitol reopened in 1992, the space not look like the dingy half-foot-candle-dark space it was in 1979. We couldn't just go in and replace everything as it had been in 1901 with Edison's lamps. And energy efficiency was not as important as retaining the character of the building, so frankly there were some areas where it worked out best to go with some relatively inefficient incandescent sources."

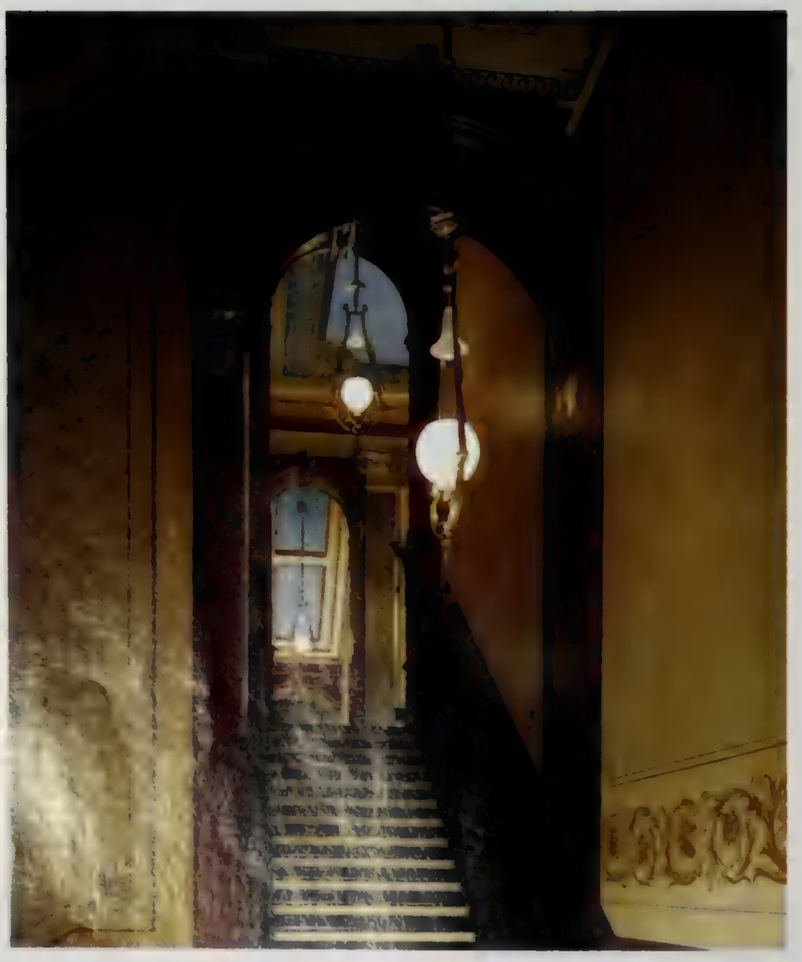
In the upper lobbies and corridors, original incandescent chandeliers and harps were reused, along with new sconces that imitated what period originals might have looked like if they had existed. All were lamped with clear, 8,000-hour traffic lamps which, like Edison's originals, have exposed filaments.

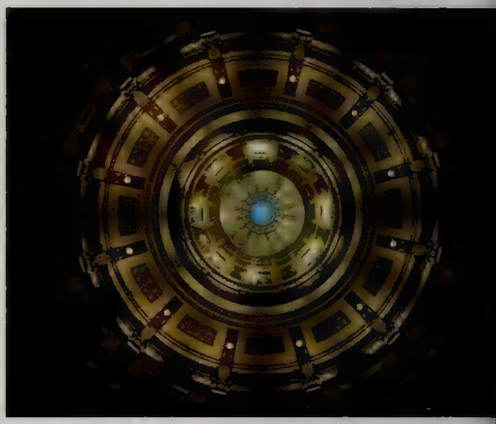
It was in the rotunda that the challenge of adding light without adding obvious fixtures was greatest. Light at the first level is bolstered by lighting through the glass floor, and from flag cases. On the second floor, incandescent-fluorescent lamps were installed in new portrait lights, and existing architectural brackets were restored. 75W PAR30 uplights were recessed into the rotunda floors at various levels to wash wall surfaces, pilasters, and the undersides of balconies. Further up in the rotunda, balconies are inaccessible to the public, so 75W PAR30s in lampholders were used. Here, they are aimed upward to wash the dome, and through balustrades toward paintings on the opposite walls. A ring of blue-filtered metal-halide fixtures lights the oculus at the top of the dome. A preset lighting-control system sets appropriate lighting levels based on exterior conditions.

The exterior lighting (previous pages, this page top) was only a restoration in that some of the five-headed lanterns originally installed on poles on the building's porticos were recreated, and compatible site-lighting was installed next to sidewalks around the grounds. Although some facade lighting existed, Steffy started over.

His approach was to highlight the architectural detailing of the building. "That meant building tiers of accent light from the ground up, highlighting the pediments of the building. From there we work up to the colonnade under the dome itself, putting some bright backlighting behind the columns, as well as front-lighting them. The large upper dome just has a soft wash fading off toward the brighter cupola." For most of the facade lighting, Steffy used warm, 3000K 100W metal-halide floods and spots mounted fairly close to the building. Narrow spots mounted in pits on the ground are used to illuminate pediments. The dome and cupola are lighted using similar roof-mounted equipment. *Charles Linn*







The lower rotunda (upper left) is illuminated by uplighting through the glass floor, new PAR30 uplights recessed into the floor, existing architectural brackets, and spill from the flag cases and portrait lighting. The upper rotunda (above) is washed by concealed PAR30s and metal-halide spots. The restored architectural wall brackets and floor uplighting wash the walls on the second floor of the rotunda. Existing harps (lower left) light a stairway.

Credits
Michigan State Capitol
Lansing, Michigan
Owner: *State of Michigan*
Restoration Architect: *Richard Frank*
Implementing Architects: *Architects Four; Quinn Evans/ Architects; Wigen Tincknell Meyer & Associates*
Lighting Designers: *Gary Steffy Lighting Design—Gary Steffy, principal; Gary Woodall, Jeff Brown, associates*
Engineers: *Shreve Weber Stellwagen (mechanical/ electrical); Robert Darvas & Associates (structural)*
Consultants: *Detroit Institute of Art (art conservation); Norman Weiss (stone conservator); Washington University Tech Associates (dome); Darla Olson (painting conservator); William Johnson & Associates (landscaping)*
Electrical Contractors: *F. D. Hayes Electric Co.; Quality Electrical, Inc.*
Construction Manager: *The Christman Company*



Come Rain or Shine

Freer Gallery of Art
Washington, D. C.
Cole and Denny/BVH, Architect
Richard Skinner, Freer Design Department, Lighting Designer



rles Lang Freer was convinced the only way to view art was un- r daylight conditions, but in the teens of this century, when he and chitect Charles A. Platt were planning the Washington, D. C. mu- um that bears Freer's name—and holds his American and Asian llections—few were aware its ultraviolet rays can damage fragile tifacts.

e completely renovated Freer that reopened last May remains ıe to its founder: daylight still pours into the galleries through 13 ylights and 21 laylights. However, the museum's design depart- ent has taken subtle steps to bring combined day- and electric hting up to conservation standards.

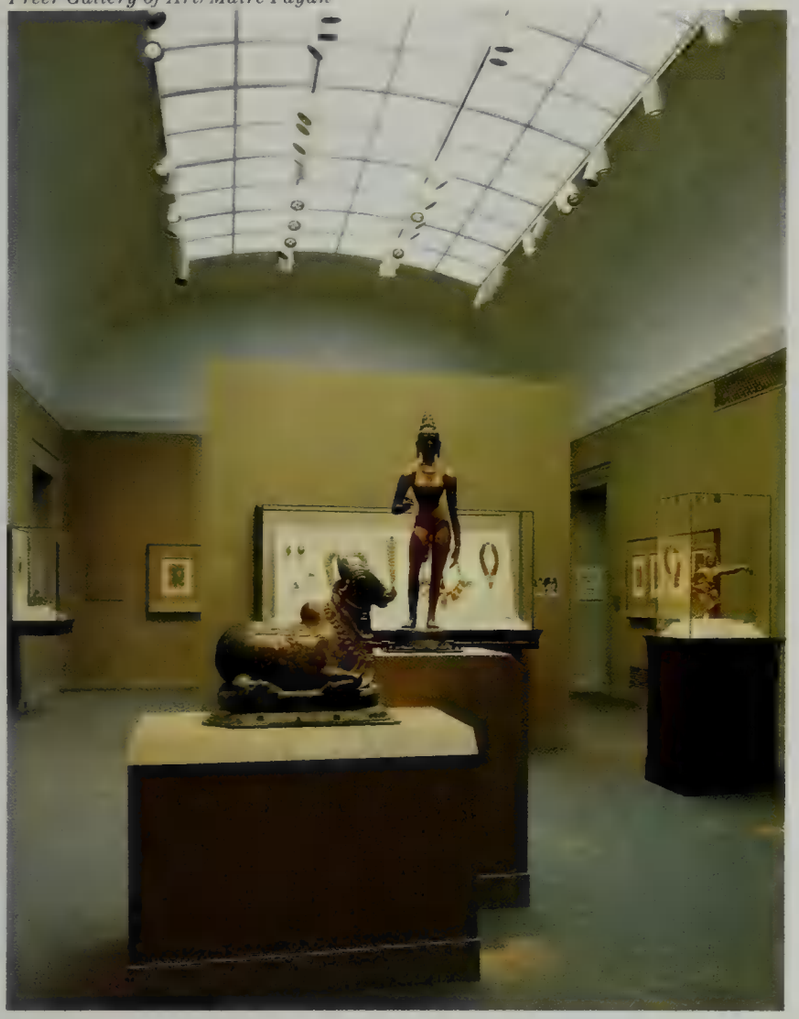
e 70-year-old laylights of ribbed, sandblasted, single-layer glass ve been replaced by laminated safety glass that conforms to fety codes and contains a clear UV-filtering polyvinylbutyral inter- er. A light-diffusing two-coat ceramic frit fired onto the room side the glass duplicates the appearance of the original and helps fur- er reduce light levels. Above the laylights, newly angled skylight ızing permits more light to enter from the north than from the ıth to minimize seasonal light changes in the galleries. Five differ- t striped patterns on the insulated glass exterior cut down light netration.

tton-mesh scrim stretched across the attics between skylight and light gives added protection to the galleries that contain the most ht-sensitive artifacts, and brings those that have the largest glass panses into conformity with all the others. Seasonal adjustments e made by adding or subtracting scrim. Some 80 percent of the ol-white fluorescents in the attic spaces have been removed and e remainder rewired on electronic ballasts; they are turned on and manually depending on the weather and the scheduling of eve- g events. The reliance on manual adjustments in the age of sors is a deliberate part of a year-long experiment involving ice daily light readings on all walls and a gallery-by-gallery con- ual recording of the complete range of brightness all day long. 'e're still learning the relationships of skylights, laylights, and the angement of artifacts," says Freer lighting designer Richard nner.

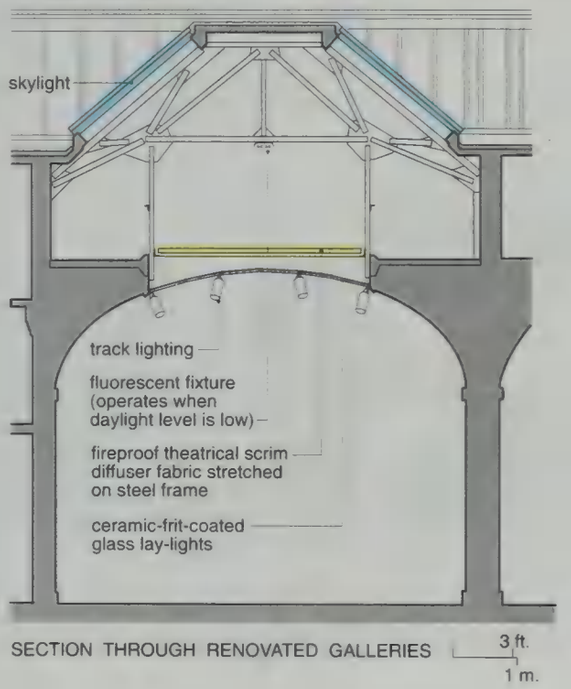
ven of the 19 galleries depend totally on ambient daylight and in- descent spots focused on individual objects. Track-mounted llwashers light the walls in the eight galleries with the most sen- ve objects and therefore the lowest ambient daylight levels, so t on gray days the spaces will not appear dark and dismal when ered from areas receiving greater amounts of daylight. "We've ed the light according to the placement of the glass and the loca- n of the rooms so that all the rooms appear similarly lit," Skinner s. Gallery track lighting combines halogen PAR36s and PAR38s ixtures painted a "shadow white" to create the least obtrusive ef- t against the laylights. Halogen sconces are used in the main ulation corridors.

e one space that doesn't follow the Freer's lighting concepts— t is, in fact, a flamboyant surprise amid the serene galleries and ridors—is James McNeill Whistler's 1877 *Peacock Room*, covered the artist with highly varnished verdigris green, Prussian blue, l a wealth of metal leaf. The original glass pendants were cleaned l rewired at the museum, and two of them fitted with fiber-optic ts trained on the painting for which Whistler conceived the entire m as a frame. *Judith Davidsen*

Freer Gallery of Art/Maire Payan



The walls in the Southeast Asia gallery (above) are very slightly washed with electric light to compensate for less light on cloudy days; a scrim behind the laylight protects light-sensitive artifacts. Focused spots and daylight pouring through a scrimless laylight constitute the illumination in one of the American painting galleries (opposite). The drawing (below) shows the relationship of skylight, scrim, and laylight.





Freer Gallery of Art/Robb Harrell



Freer Gallery of Art/Maire Payan

Daylight and electric light combine in a corridor (top left) facing the courtyard, where heavily tinted neutral-density film in the glazing protects sensitive art. For a uniform appearance on both bright and dark days, the museum design staff retired "not terribly attractive" ER sources at the points of the groin arches, and designed both new uplight sconces and adjustable recessed fixtures that accommodate up to three MR16 sources behind a 2- by 6-in. aperture.

In one of the more daylight-accessible areas (bottom left), a tic-level scrim provides an extra filter to protect sensitive artifacts (the door at left has since been veiled). Spots surrounding the laylight bring out images and sparkle on the gold leaf. Dust-proof display cases have an anti-reflective coating.

Charles Lang Freer purchased a London dining room (opposite) whose owner had returned from a trip to find James McNeill Whistler had decorated and varnished every surface. "The glare," says Freer lighting designer Richard Skinner, "was intended by the artist." Lighting assistant Michael Edson placed fiber-optic spots in the perforations of two original pendants to light The Princess from the Land of Porcelain.

Credits
Freer Gallery of Art, Washington D. C.
Owner: *Smithsonian Institution*
Architect: *Cole and Denny/BVH*
Lighting Designer: *Richard Skinner, Freer Design Department; Michael Edson, assistant lighting designer; Patrick Sears, project manager; Claude Engle, skylight consultant.*
Electrical Engineer: *Cad-Con*
General Contractor: *Associated Builders; Wm. V. Walsh Construction (skylight and roof)*





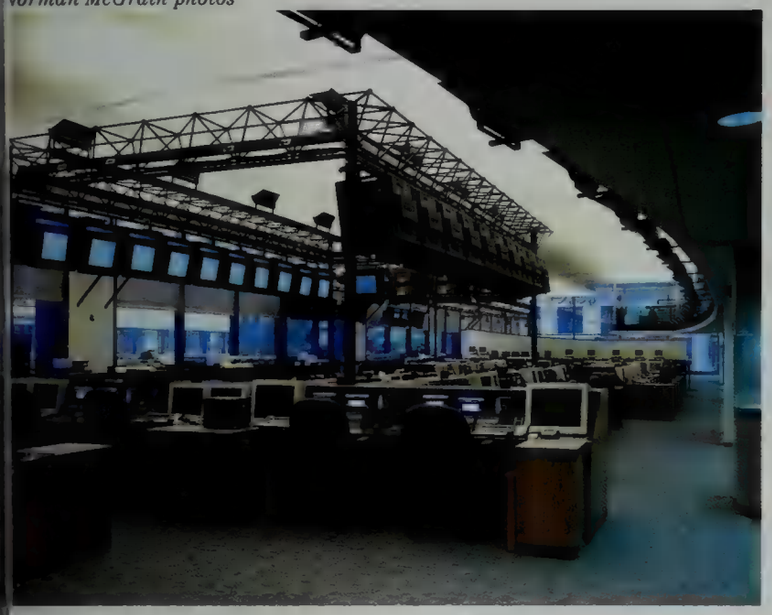
Freer Gallery of Art/John Tsanes and Jeffrey Crespi

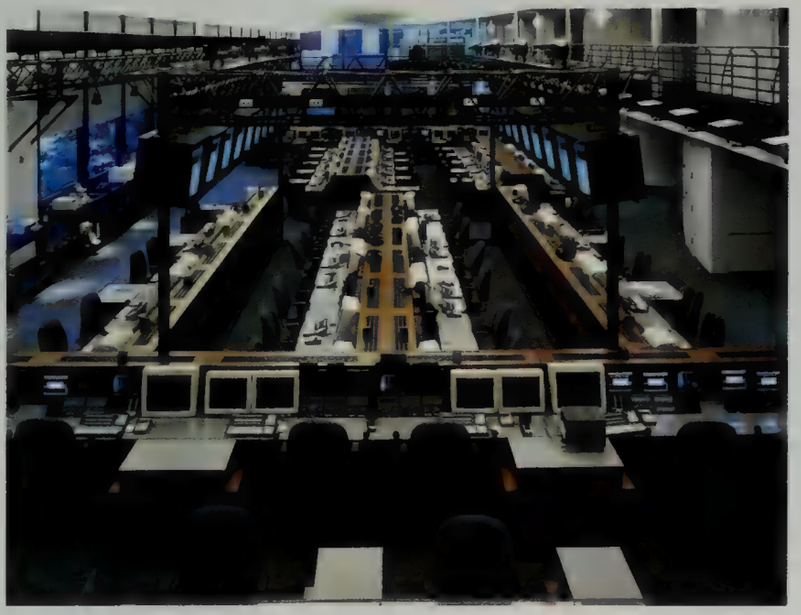
Trading Up

Credit Suisse Trading Room
New York City
Janko Rasic Associates Architects
Imero Fiorentino Associates
Lighting Designer



Norman McGrath photos





The halogen uplights are a type usually used outdoors. Project architect John Kinnear designed baffling for the tops of fixtures to conceal the intensely bright lamps from the view of persons standing on the mezzanine. A slanted, smaller-scale baffle was used to shield fixtures mounted on the window wall. Does daylight present a screen-glare problem? The room faces north and the gray solar glazing is 1/2-in.-thick. If all else fails, there are shades. A fiber-optic strip behind the edge of the ceiling cove makes it appear to float.

nology is part of the design," says architect Janko Rasic. He lik-s this new block-long trading room of the Credit Suisse Bank in wer Manhattan, with its sweeping curves and elegantly utilitarian ailing, to an ocean liner. A freestanding steel-truss system sup-rts some of the uplights illuminating the space, as well as banks computer screens in the constant sight of some 100 traders. These eens display vital, constantly changing information on trends in money market and are supplied by some 120 reporting organiza-ns. Credit Suisse's Thomas Denis not only manages such day-to-y operations as coordinating these organizations, but also was the hitects' client contact. He took an active role in maintaining the month design and construction schedule.

xibility was one of Denis's primary goals, including the ability to ickly replace computer equipment in pace with rapid technological vances, and to rearrange furniture to meet the traders' needs. e-foot modular desks designed by the architects for the space are rently arranged in long rows. Their design allows them to be re-anged in U-shape or square configurations for groups of traders rking together on future projects. One of the logistical problems architects had to solve was how to support the mezzanine that erlooks the trading floor. The trading-floor structure itself could be braced because it is above the building's public lobby. In-ad, the mezzanine was built with edge beams up to 50-feet long, supported by rod hangers attached to the beefed-up ceiling ucture above. A second logistical challenge was the need to keep erations running during business hours around the world—that 24 hours a day. Ease of equipment maintenance was assured by keeping all cabling and mechanical lines out of the ceiling and walls, running them instead under a raised concrete floor for unobtrusive access.

Architect-in-charge John Kinnear conceived the idea of bouncing light off the cove-shaped ceiling to reduce glare on computer screens and to accommodate changing furniture arrangements. The diffused lighting gives a high visual-comfort level, and the ability to quickly replace lamps also lives up to the easy maintenance requirements, meeting two more client goals. According to Kinnear, his original idea of using theatrical lighting would not have worked. Lighting consultant Frank Kelly pointed out that the short-lived lamps would require constant replacement. Instead, he recommended halogen fixtures with parabolic reflectors to eliminate hot spots and used computer modeling to test their effectiveness. Meanwhile, the architects built a 1/4-scale model first, and then a full-size section of the room. They found what they expected. The ceiling shape, which worked so well for bouncing light, was a poor shape for acoustics. Spray-on acoustical insulation corrected the problem.
Charles K. Hoyt

Credits: *Credit Suisse Trading Room, New York City*
Architect: *Janko Rasic Associates Architects—John Kinnear, architect-in-charge*
Lighting Designer: *Imero Fiorentino Associates—Frank Kelly, project designer*
Electrical Engineer: *Jaros Baum Bolles*
General Contractor: *Meli Borrelli Associates*

House Lights Up





estoring this West End theater
volved faithful recreation of 1920s
ghting using today's technology.

Savoy Theatre, London
Whitfield Partners Architect
Max Fordham & Partners
Lighting Consultant and
Services Engineer



ıon's 1881 Savoy Theatre was the first theater totally lit by elec-
ː light. Rebuilt in 1929 by architect Basil Ionides in an
ɔsyncratic blend of oriental and Art Deco styles, the theater was
ılly damaged by fire in 1990. The aim of the $18-million restora-
n, completed in the summer of 1993, was to recreate the splendid
erior using modern technologies and materials. The Savoy is
ed on the British equivalent of the National Register of Historic
ıces, which meant that the completed restoration had to resemble
· 1929 version as closely as possible.

essential component of this task was the restoration of the ar-
ıic front-of-house lighting, using identical luminaires fitted with
dern light sources. "Energy-saving was one consideration," ex-
ins project engineer Nicholas Wedgewood of Max Fordham &
tners, project engineers, "but low maintenance was also a major
ıe, as many of the luminaires are quite inaccessible." This is par-
ılarly true at the upper levels of the theater, where a new plant
m and health club have been built above the present structure—
swimming pool sits right over the stage.

ny of the 1,137-seat auditorium's sculpted surfaces are covered in
tering aluminum leaf, which makes great play of the lighting,
vided by four main groups of luminaires. These are all dimmable,
l controlled by one dimming system. Most notable are the 32
ylight" boxes in the ceiling above the proscenium, each contain-
three 100W long-life tungsten lamps concealed above a diffusing
ıel. These reflect down and off the elaborate coffered Chinese
ls and their richly engraved center panels, which arch over the
ıt of the stage.

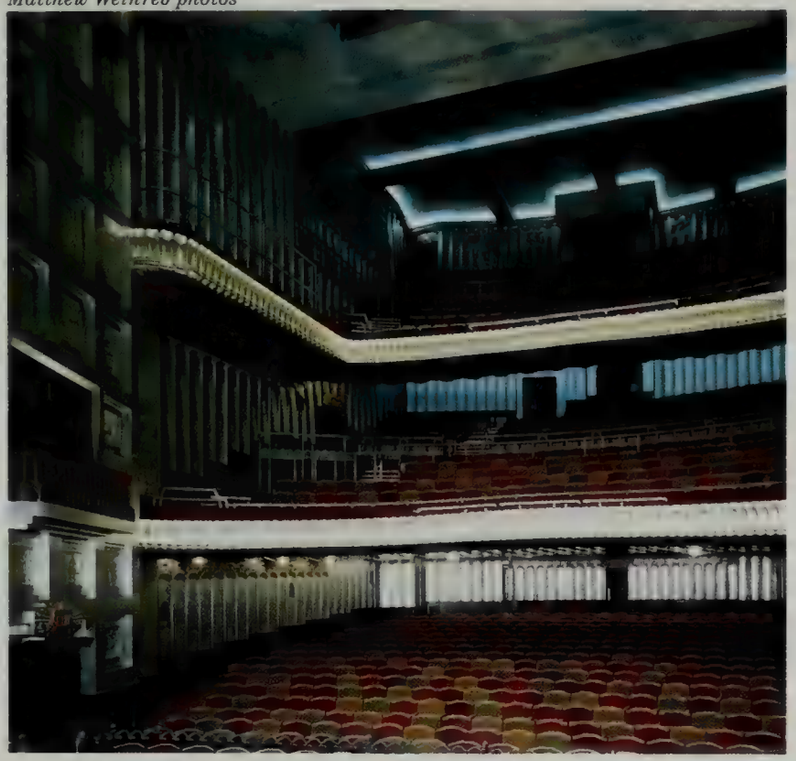
the back of the upper balcony, concealed cold cathode, life-rated
0,000 hours, adds a mysterious, glowing edge to the ceiling,
ıted to resemble sky. A similar hidden source is used to provide
tle uplighting to the bulkheads in the intermediate balcony. The
ered, scalloped balcony fronts at both levels are demarcated by a
of 40W tungsten lamps, hidden behind diffusers that resemble
shells. "We wanted to use low-voltage tungsten halogen, for ex-
sparkle, but there was no room for the transformers,"
lgewood says.

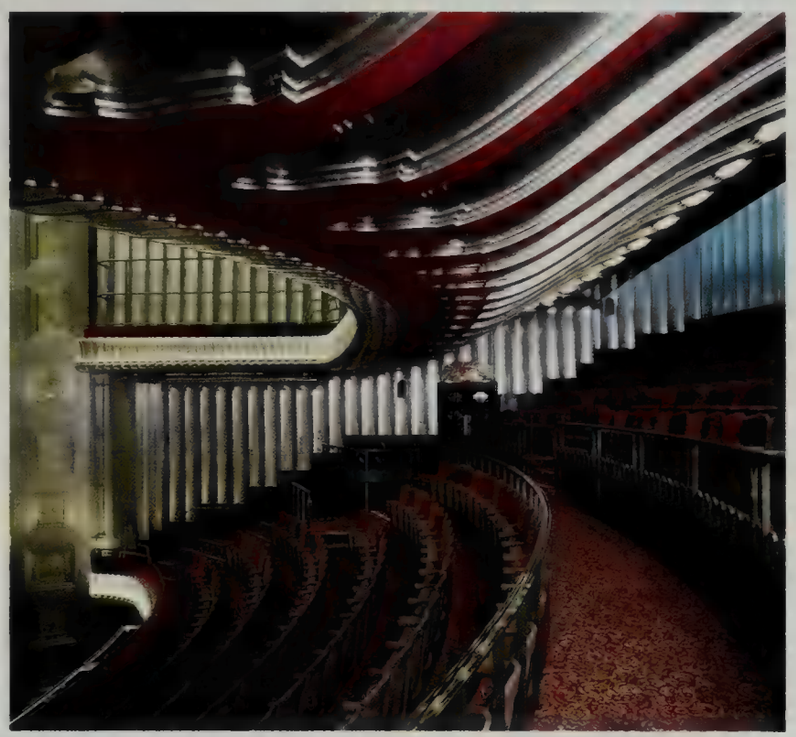
most difficult luminaires to recreate were the decorative "V"-
ures—named for their shape—which occur under the balconies
elsewhere in the theater. These comprise 75W tungsten lamps
ısed by delicately hand-blown, white-etched glass, which were
ːom-made to match the original. The same glass was used on spe-
linear tungsten luminaires incorporated into the backs of the
ıd-new air-conditioning vents in the upper balcony. At all levels,
ɔndary emergency lighting is provided by fiber optics.

he bars, lobbies, and circulation areas, with their emerald green
ls and huge "balloon" motifs, dimming was not a major consider-
n. Here compact-fluorescent replaced the inefficent tungsten as
preferred source—the "V"-lamps, for example, are equipped
ı an 11W compact fluorescent lamp. What was more problematic
the reconstruction of fixtures for easy maintenance. Some ceil-
mounted fixtures that originally came apart in many pieces were
e less complicated, making their new fluorescent lamps and bal-
ı easy to replace. *Carl Gardner*

l Gardner is a London-based freelance writer specializing in
rior and lighting design, and co-author of Lighting Design:
ntroductory Guide for Professionals.

Matthew Weinreb photos





Dramatic lighting makes full play of the Savoy's aluminum-leaf decoration. Long-life tungsten lamps are used in the ornate ceiling coffers over the stage and along the balcony fronts, while cold cathode gently highlights the edges of the balcony ceilings. All the house lighting is controlled by a single dimming system.

Credits
Savoy Theatre, London
Owner: *The Savoy Theatre Ltd.*
Original design 1929: *Basil Ionides*
Restoration Architects: *Whitfield Partners*
Consulting Engineers (including lighting): *Max Fordham & Partners*
Theater Consultants: *Julian Courtenay and Theatre Projects*

Two Studies in Gothic

The strongest common denominator between Patrick Keeley's 1888 French Gothic revival church, St. Peter's Cathedral in Erie, Pennsylvania, and Bertram Goodhue's 1928 English Gothic revival Christ Church, in Cranbrook, Michigan, is their soaring, uplifting height, strengthened by their vertical architectural elements, columns, pilasters, and tracery, especially the long mullions. Both spaces are filled with beautiful Gothic detail and ornamental architectural art.

But the differences begin with their sizes. St. Peter's has more than twice the cubage and seating as Christ Church, and has a much more open plan, with a great long nave and deep sanctuary. Both congregations expressed a desire for a flexible, dimmable, system that would increase light levels, which were as low as one-to-two footcandles in many parts of their naves. At Christ Church no architectural changes were made during the relighting; at St. Peter's the sanctuary was brought forward, partly into the transept, and a post-Vatican II arrangement created.

Decorative lighting

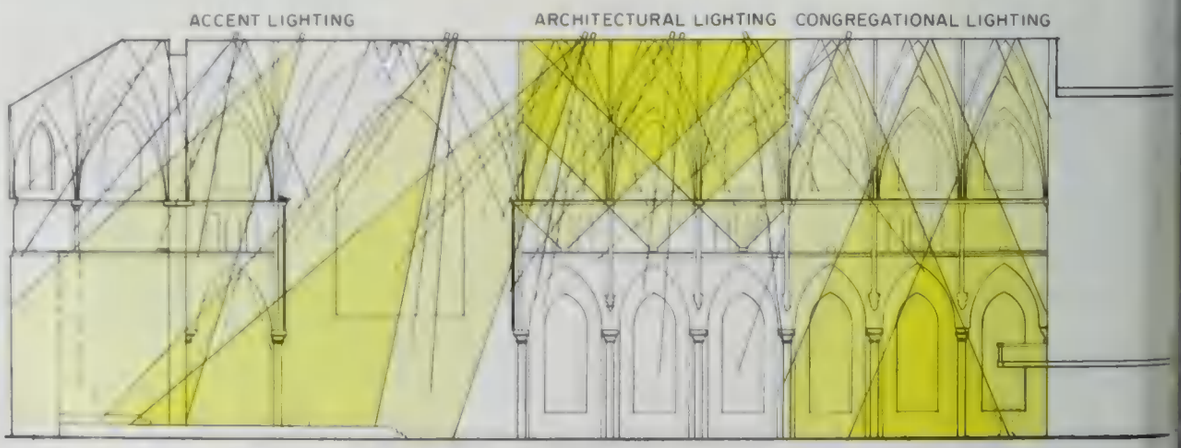
When the work began, both churches still had their original pendant lighting systems. Christ Church's filigree units, made by Caldwell and Company in 1928, recently had their lower-lamp output increased. When their bottom glass plates were removed, severe glare was created. The levels of light expected in a sanctuary today would require a sea of lanterns, even in their present glaring condition. The solution was to reuse the lanterns, restoring them to their original lamping and appearance, but to use new equipment elsewhere to provide the majority of the illumination required.

At St. Peter's, the 32 original "plumb bobs," repousséd in copper by Rambusch Lighting in 1921, were hanging two per bay, but had been supplemented by downlight from the attic in 1951. To open up the interior, the pendants hanging in the nave space were removed. Ten were saved and hung within the side aisles, giving warm light in the secondary space.

Congregational lighting

In both churches it was decided that the congregational, or "reading" light, should come from high, deeply baffled ellipsoidal reflector downlights, with high bay pinhole apertures. In both cases there was considerable overlapping of beams, so that at any point a reading height, light is contributed from at least four lamps, giving soft, shadow-free illumination.

Christ Church has a lower light level, up to 17 footcandles as compared to St. Peter's 24 footcandles. Lighting systems in both churches are on dimmers, limited to 90 percent of full voltage. This extends lamp life, but yields a warmer light at less than full lumen output. Christ Church had no recessing space—rather a truss-supported timber ceiling—so two 500W downlights per bay were bracket-mounted to the nave side of each truss. These were attached to a device that lowers the fixtures to the floor for easy relamping.



St. Peter's Cathedral. *This section illustrates the basic beam patterns of For purposes the lighting system shown*

he relighting of two classic merican churches reveals the ubtleties of the English and rench Gothic Revival styles.

Peter's had ample accessible recessing space, so four 400W nlight units in each bay were placed to the right and left of a cat- k above the groin vaulted ceiling. These were installed in the nings left by the original fixtures using special adapters, avoid- the need for new apertures.

hitectural lighting

main nave ceiling in both churches was illuminated as part of relighting. Christ Church has no triforium, so uplighting was ealed on the deeply-set clerestory window ledges. This location logical because it was from here that the architect had origi- y admitted daylight into the building. When the units were ed on, the gilding and polychroming of the beams became visible the first time. The side-aisle walls were washed with miniature W quartz wallwashers so the rhythm of the arches and columns ld read in silhouette. The magnificent fresco on the chancel ls received its own wash of light.

St. Peter's, uplights were placed in the center panel of each blind oria. Small hatches were made so that each 500W quartz uplight d be relamped from the large shed space over the side aisle ceil- s. Recessed accent fixtures were used to graze the 14 Stations of Cross located between the stained-glass windows in each bay.

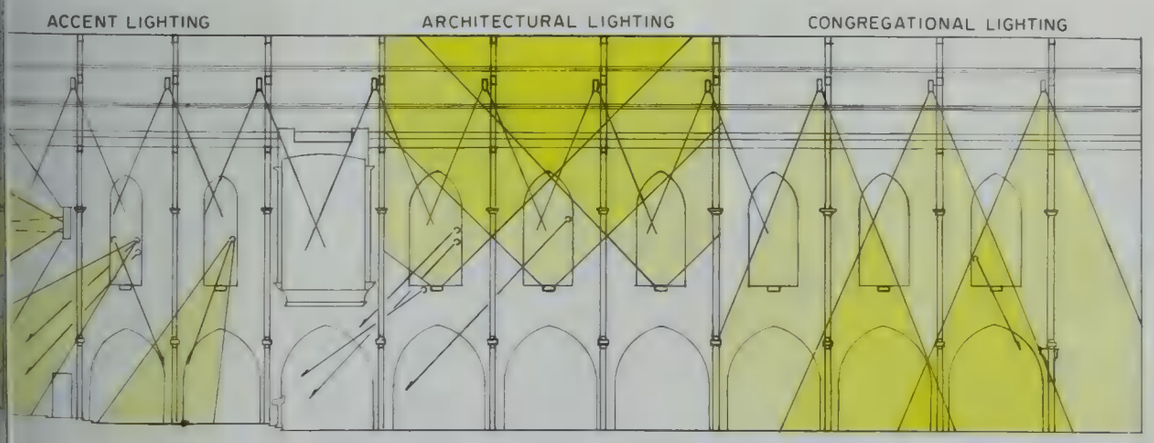
ent lighting

Christ Church, accent lighting was tucked into the deep reveal of the windowsills. Surface-mounted fixtures with deep, dark-painted hoods and an internal yoke were selected to minimize glare. These were placed on the far side of the reveals to conceal them from the congregation. At St. Peter's recessed 60-degree adjustable 300W and 500W units were selected, since the enormous throw would negate the effect of smaller 150W and 250W units. Many of the vault surfaces had compound curves, so maximum adjustment in the recessed downlight units was essential.

Dimming systems

Dimming systems control the lighting at both churches. At each church, the four different lighting types (decorative, congregational, architectural, and accent) have been separated into individual zones, each activated by a pre-set button. Christ Church has eight light level presets controlling 18 channels, and St. Peter's has 16 presets controlling 34 channels. In both churches there were presets for visiting hours, pre- and post-service, the Liturgy of the Word, and the Liturgy of the Eucharist. During services, the devotional lighting at St. Peter's is dimmed way down or turned off; at Christ Church, the great chancel fresco is only slightly dimmed.

Although originally vastly different in execution, these two interiors have been retrofitted with similar flexible lighting systems that can easily be used by officiating ministers or their assistants to create a wide range of effects. Only music can make a greater contribution to the liturgy. *Viggo Bech Rambusch*



Christ Church. *This section shows the locations and beam patterns of new lighting. Christ Church had no attic space for recessing fixtures, so new fixtures were surface-mounted as subtly as possible.*

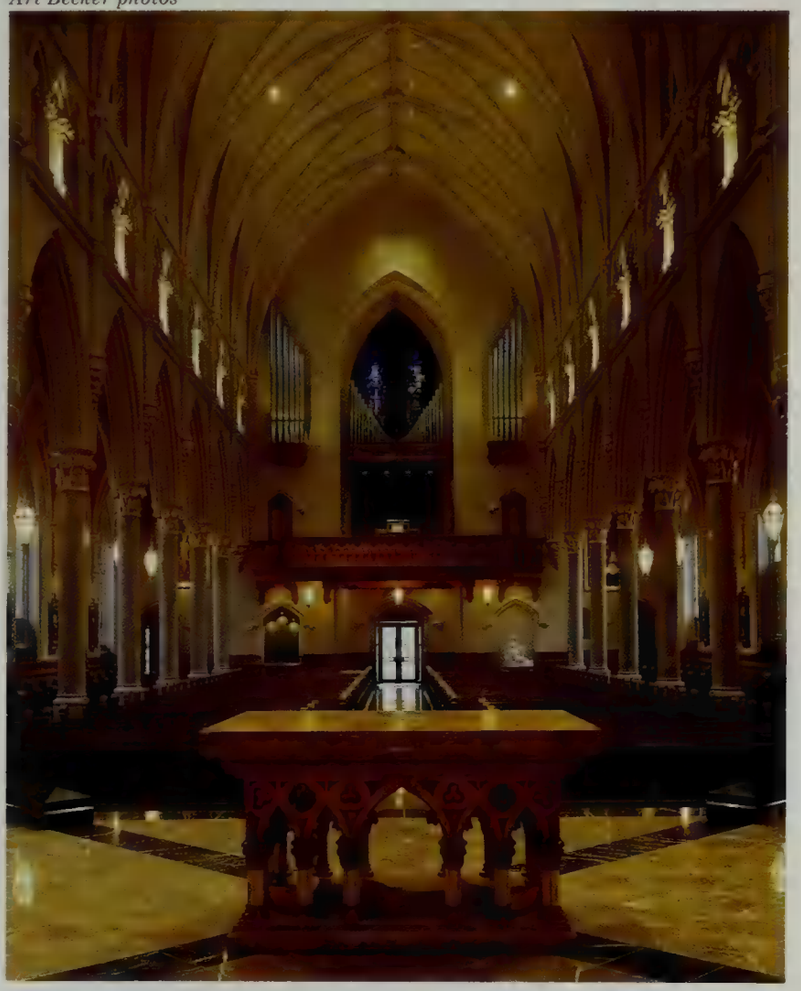


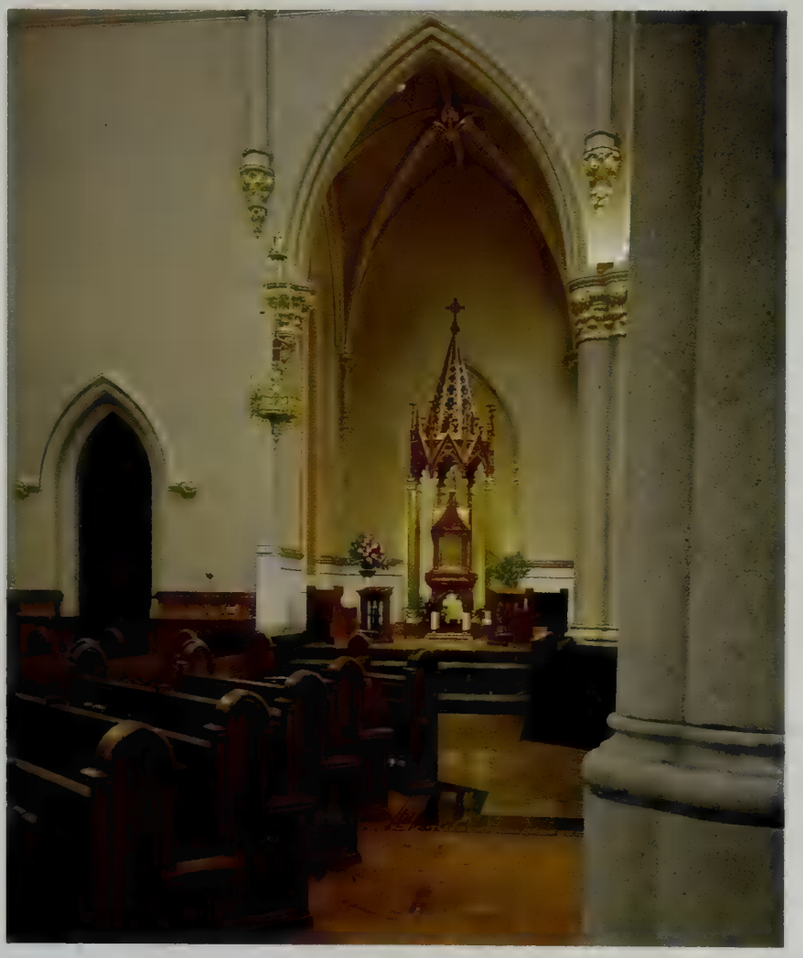
. Peter's Cathedral
is church is a classic exam-
e of French Gothic revival.
e original pendant lighting
stem has been removed to
en up the space, and new re-
ssed quartz downlights and
cent lighting installed in the
ulted ceiling (opposite and
ction below). A wash of light
thrown onto the ceiling from
artz floodlights mounted on
e sill beneath the blind
iforia.

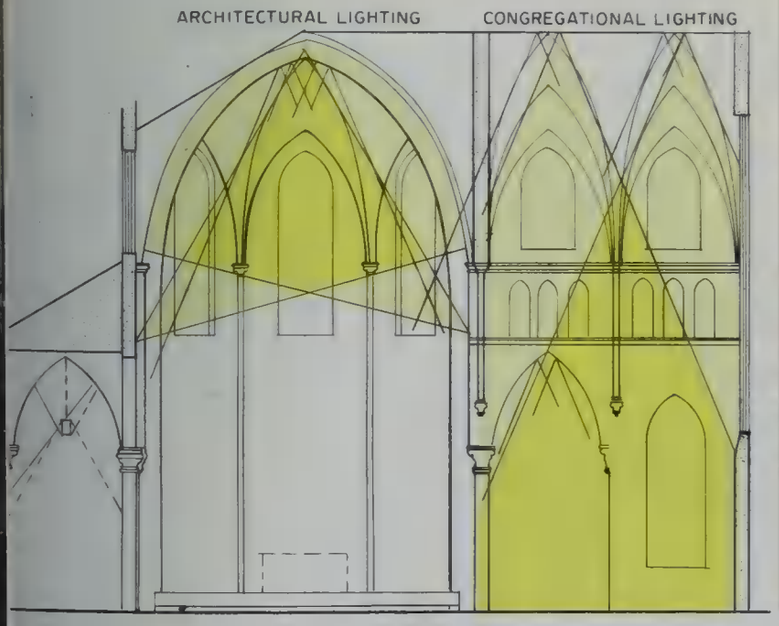
e lighting is controlled by a
eset dimming system, with
eset scenes (upper right) for
fferent liturgical occasions.
e Chapel of the Reservation
the Eucharist (below right)
ceived a soft, mysterious
sh of light.

edits
. Peter's Cathedral
ie, Pennsylvania
chitect: *Weibel Ryzewski &*
uster—Richard Weibel,
thedral architect
ghting Designer: *Rambusch*
corating Company—Viggo
ch Rambusch
urgical Designer: *Rolf Rohn*
Associates

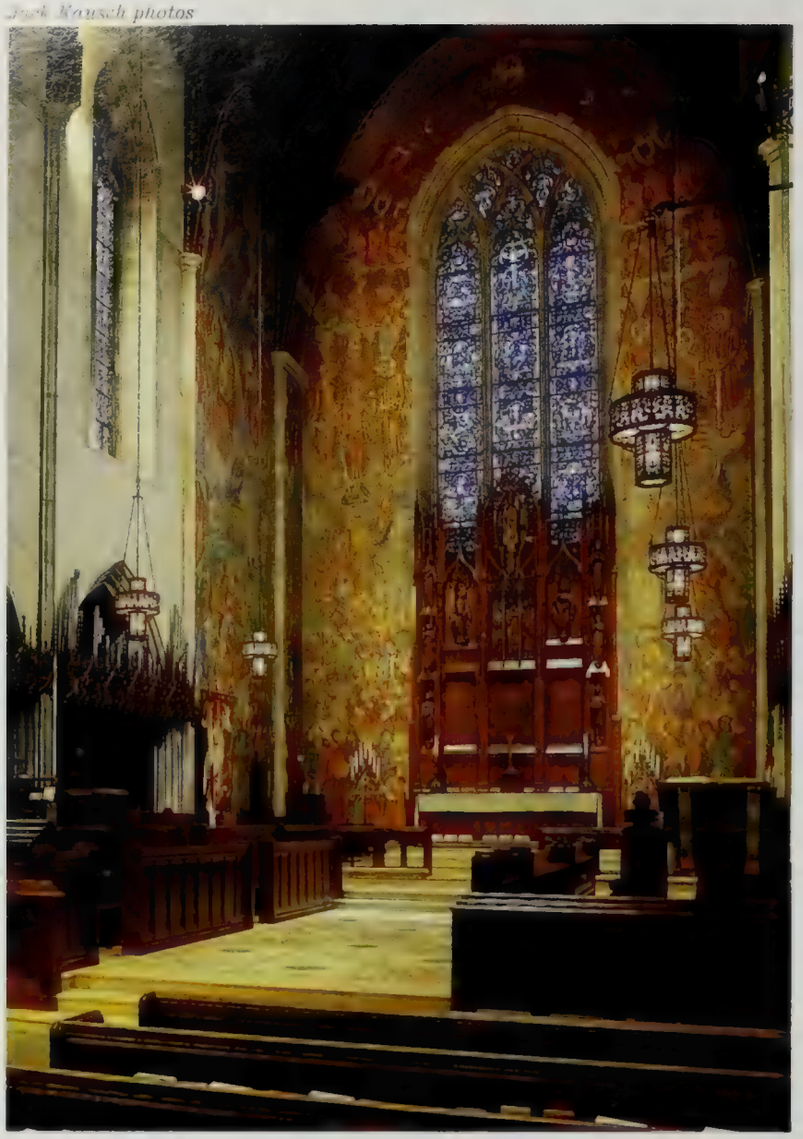
Art Becker photos







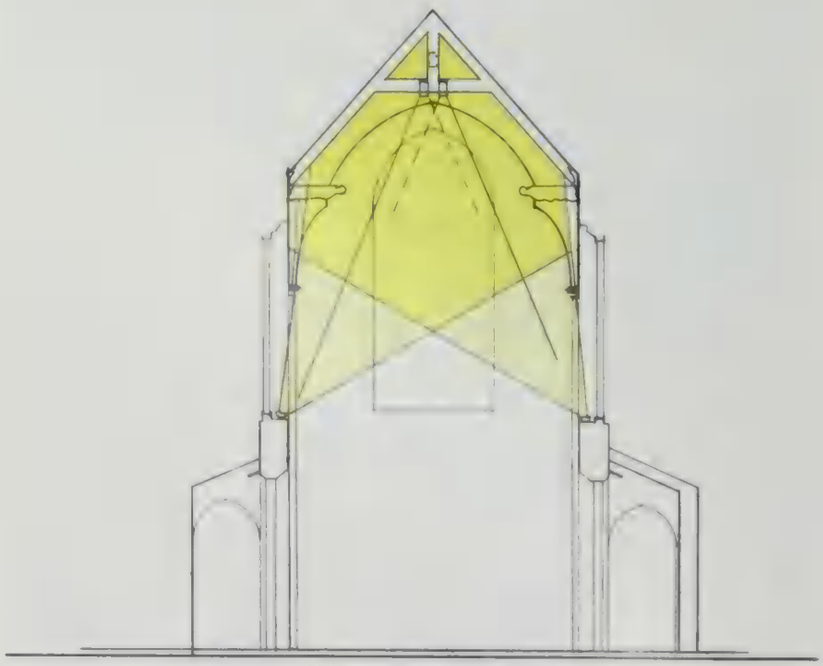
Jack Kausch photos





Christ Church
Before Christ Church, an example of English Gothic Revival, was relit, most of the richly detailed ceiling and trusswork simply disappeared into darkness. The new architectural lighting system uses quartz uplights concealed on the clerestory window ledges (section below and photo opposite) to reveal the gilded and polychromed beams for the first time. Because there is insufficient space in the ceiling for recessing downlights, exposed downlights have been mounted on the nave side of the trusses. The fresco on the chancel wall (left) received its own wash of light.

Credits
Christ Church
Cranbrook, Michigan
Architect: *Jickling Lymon Powell Associates—John Jickling, project architect*
Lighting Designer: *Rambusch Decorating Company—Viggo Bech Rambusch*
Project Coordinator: *Charles Raines*



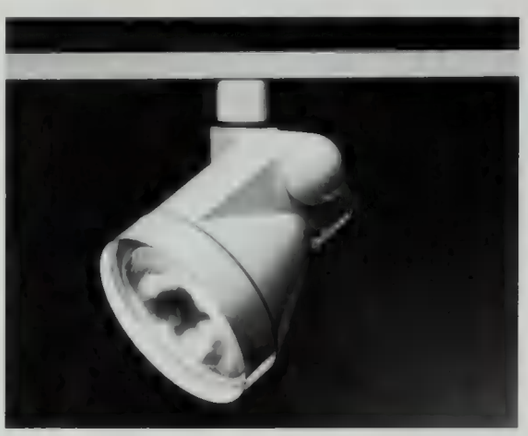
ARCHITECTURAL LIGHTING

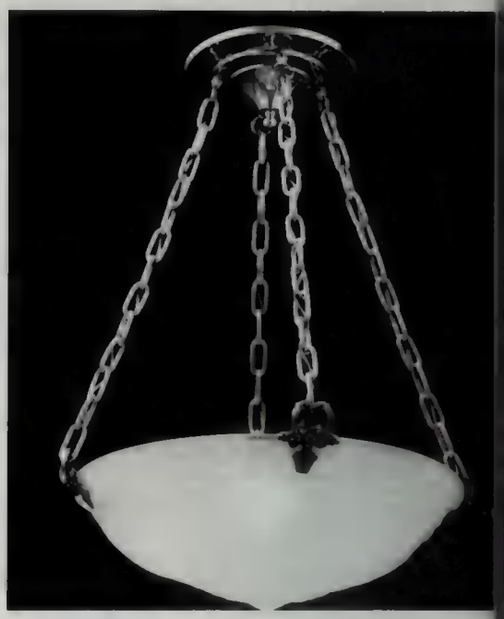




311. Versatile downlights
Described as vandal- and weather-resistant, rectangular Pragmatic fixtures are suggested for walls and ceilings indoors and out. The low-profile aluminum housings can be specified for any of seven different lamp types. Standard finish is black enamel; match-color option available. The 10-in.-deep vertically oriented design is pictured above. Voigt Lighting Industries, Inc., Leonia, N. J.

312. Track fixture for low-watt PARs
The new KT858 lampholder has been designed specifically for GE's highly efficient PAR38IR lamp, as well as the PAR38 lamp in sizes from 45 to 250 watts. The fixture resembles the KT855 unit, and echos the lines of the maker's other cone-shaped track designs for MR11, MR16, T4, PAR30, and other sources. The new fixture is recommended as display and accent lighting where specifications call for energy-saving track installations. Capri Lighting, Div. Thomas Industries, Los Angeles.

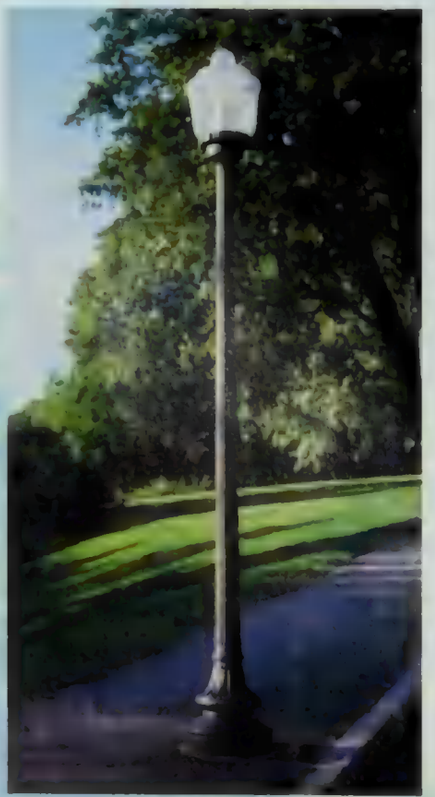




313. Turn of the (last) century
A large-scale (23 in. in diameter) chandelier offered by a Portland firm specializing in authentic reproduction lighting, the Ainsworth luminaire has a pressed-glass bowl made from the original, Edwardian-era mold. A colorful catalog illustrates over 240 other fixtures in Victorian, Arts & Crafts, and Art Deco styles. Rejuvenation Lamp & Fixture Co., Portland, Ore.

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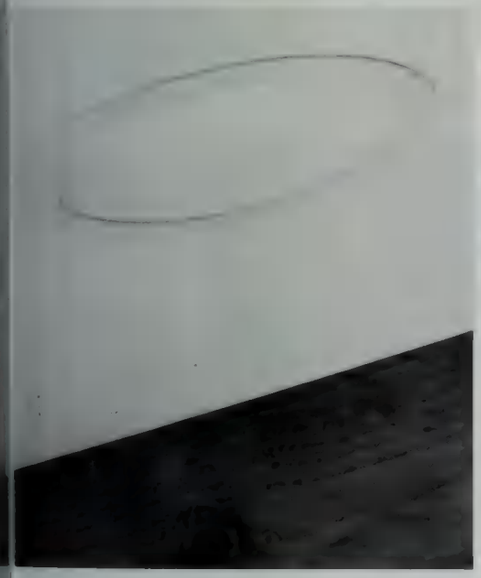
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zontal-, and overhead-mount installation.
user can be specified in prismatic poly-
onate or smooth white acrylic. Thomas
etts Corp., Memphis, Tenn.



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white recessed trims—cones and baf-
—as well as clear, gold, and black Alzak
ctors fit into standard Lite Box insu-
d-ceiling housings, including those for
ed ceilings, as shown here. Trims accept
t lamps. Prescolite, San Leandro, Calif.
tinued on page 48

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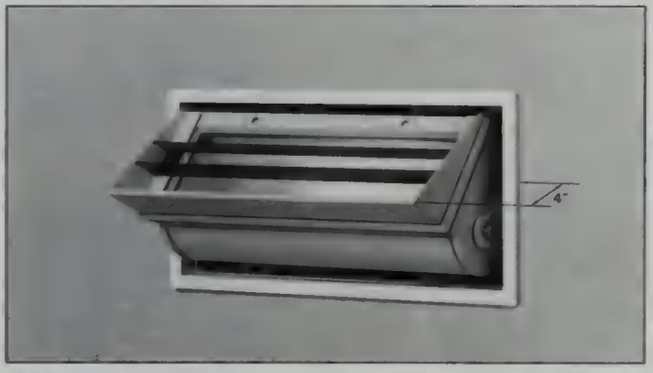
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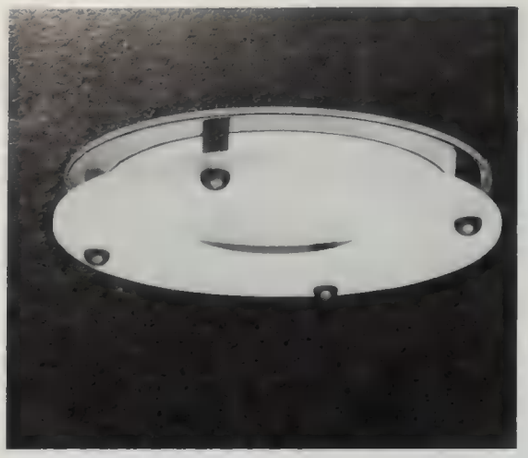
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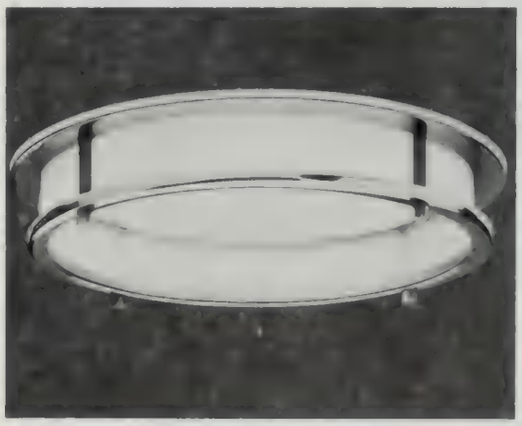


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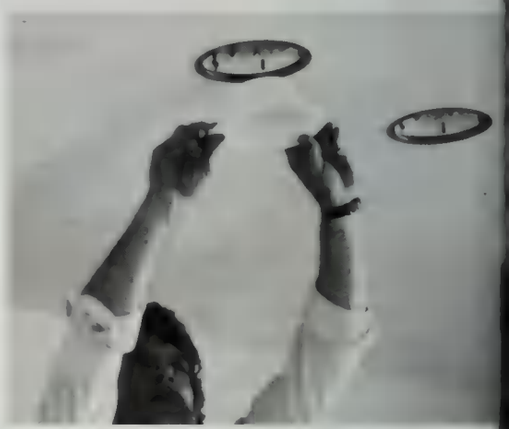




316. Renovating domestic downlights
A new line, Accents trims add decorative options to standard residential recessed downlights, matching the ceiling or soffit light to a traditional wood bookcase, for example, or picking up the bright brass of cabinet knobs. Below white stepped baffles, translucent collars and discs bounce some light onto the surrounding ceiling for a brighter effect (left). Other Accents accessories are marbleized or etched-glass-look covers that conceal the bulb and distribute light more widely. All trims can be retrofitted to existing Juno 4- and 6-in.-wide recessed fixtures.

A new remodel housing makes it easy to install recessed downlights into an existing ceiling (right). A supplied template guides sawing a hole in the drywall, then the power supply is pulled through the hole and wired to the fixture (top). The entire housing fits into the opening and is held by special remodel clips, and a trim ring covers hole edges and housing (bottom).
Juno Lighting, Inc., Des Plaines, Ill.





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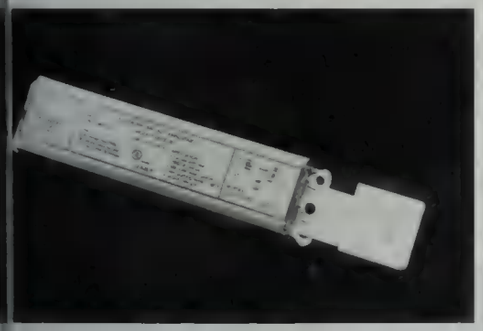
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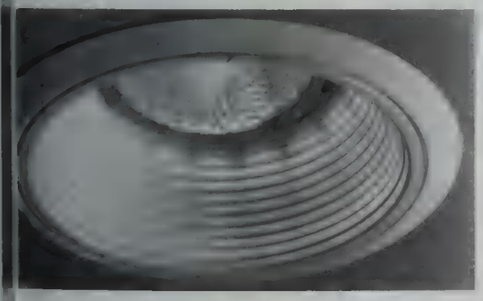
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new Factor product is a self-diagnostics em that constantly monitors the status ne lamps, batteries, and chargers of this er's emergency exit and lighting equip- t, and automatically tests the unit every ays to ensure code compliance. Hubbell ting, Inc., Christiansburg, Va.



3. Fluorescent dimmer
to exceed requirements for utility re- programs, the Dimwatt dims smoothly n to 10 percent of full intensity. Compat- with incandescent controls and pancy- and ambient-light sensors, dim- comes in electronic and linear-ballast ns. Stocker & Yale, Beverly, Mass.



'. White-trim downlights
-reflectance matte-white paint finish is to provide a clean, seamless look that ds well with any interior. Housings are oved for use with energy-efficient halo- PAR and compact-fluorescent lamps. bell Lighting, Inc., Christiansburg, Va.
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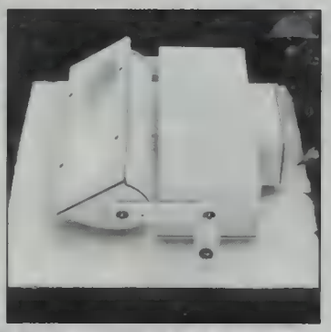


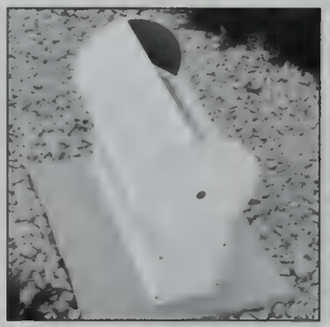
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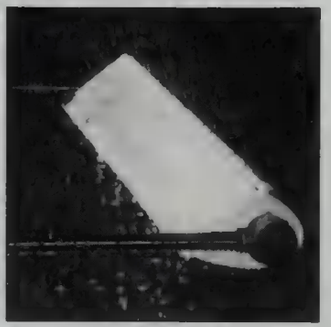
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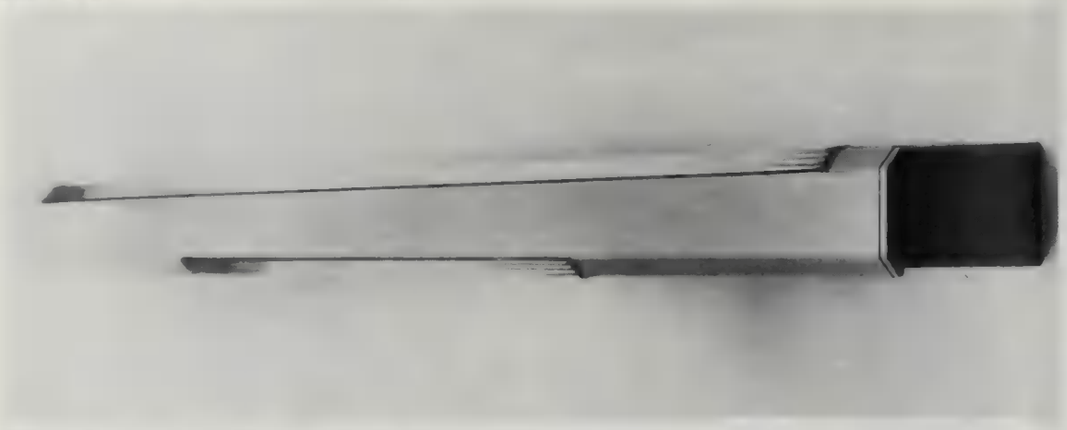
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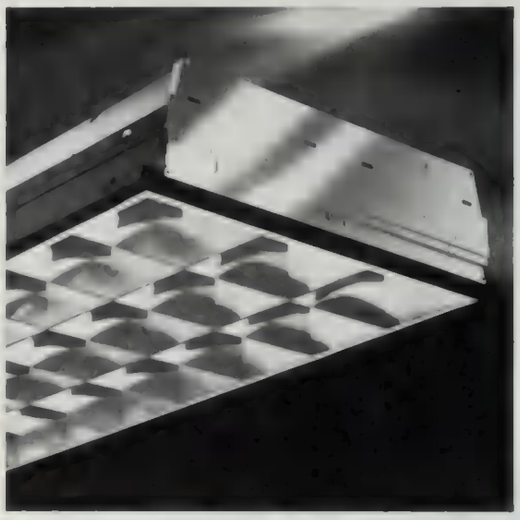
elliptipar. By far

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 continued from page 49



321. Patient-room lighting
A wall-mount direct/indirect bed light for use in medical facilities, the VE-H contains two T8 fluorescent-lamp uplights, and one 40W CFL downlight that can be switched separately. The extruded-aluminum housing comes in 4- and 5-ft-long units; lamps and ballast are attached to an internal gear tray. The fixture is leveled by means of a concentric washer. Standard finish is white powder coat; custom colors available. Zumtobel Lighting, Inc., Garfield, N.J.



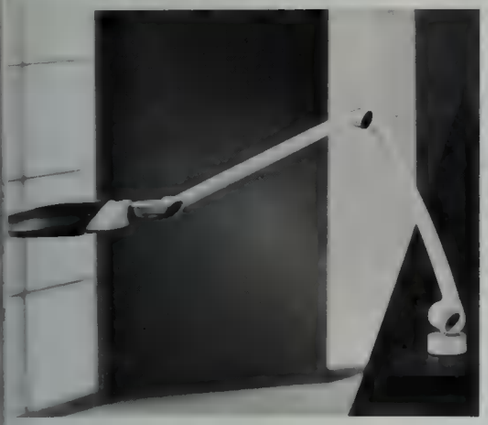
320. VDT-glare eliminator
The Precision Cut-Off Parabolic (PC 2) lighting system (left) is said to completely eliminate VDT glare by suppressing high-angle brightness. The specular, low-iridescent aluminum louver incorporates compound parabolic profiles in both lengthwise and crosswise planes. Developed by the Metalux division, the luminaire "bends" light effectively enough to exceed the light control standards recommended by the Illuminating Engineering Society. Cooper Lighting, Elk Grove Village, Ill.



322. Sand-glass ceiling light
Timete, designed by David Palterer, has a cast-aluminum body and steel struts supporting a large (23- or 26-in.-wide) diffuser of molded sanded glass. Artemide, Inc., Farmingdale, N. Y.



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3. Task light for the office

e latest in a Euro-styled line, Valencia has
culpted, tiltable lamphead with two 9W
mpact-fluorescent lamps. Standard bulbs
e a color temperature of 4100K, and a
I of 82. Lamphead comes in matte black,
t gray, teal green, and burgundy.
idmann Lighting, Wheeling, Ill. ■

nufacturer Sources

your convenience in locating fixtures and
r products shown in feature articles,
ORD has asked the architects and lighting
gners to identify their sources.

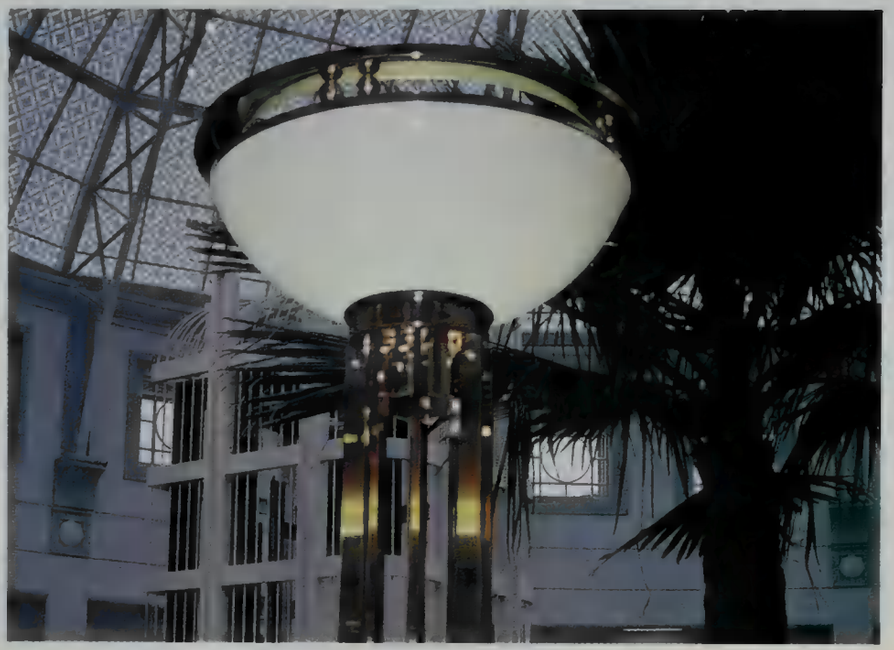
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olights: Lithonia. Lighting energy controls:
on. Louvers: Norton. Exterior cove
ghting: Peerless. Sconces: St. Louis Antique
ting. Exterior bollards and gelled uplights:
ner. Exerior floodlighting and lamps: GTE
ania. Ceiling-mount globes: Urban Archaeol-
Repair and restoration of site lighting:
hington University Technology Associates.
lighting poles: Western Lighting Standards.

es 30-33
r Art Gallery
ard Skinner, lighting designer
t track, modified track-mounted fixtures: Edi-
Price. Freer-designed corridor uplight
ces, adjustable recessed MR16 downlights:
LUX. Laylight glass: PPG. Exterior skylight
s: Alpen. Fiber-optic illuminator, cables: Opti-
Display Lighting. Historical fixture
oration: Rambusch.

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o Rasic, Architect
rtz uplights: Elliptipar. Theatrical projectors:
an Stage Lighting. Track lighting: Lightolier.
rtz cove-lighting strips: Starfire. Wall sconces:
mide. Lighting controls: Macro Electronics
). Fiber-optic accent lighting: Lumenyte, Int.

es 40-45
st Church and St. Peter's Church
o Bech Rambusch, lighting designer
rtz downlights, uplights, accent lights: The
busch Company. Lighting-control systems:
on (St. Peter's); Lehigh (Christ Church). ■

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06516 USA
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FAX: 203 931-4464

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Circle 171 on inquiry card

Product Literature/Lighting



418. Decorative Italian fixtures
VeArt's 1994 catalog includes dramatic color photographs of the Venexiana Collection of Murano glass luminaires, as well as full dimensional and lamping information. The high-style line features single, double, and triple-light sconces and multiple-light chandeliers. Artemide, Inc., Farmingdale, N. Y.



419. Direct/indirect pendant
Lunos provides direct downlight through straight-blade or paraboli baffles, and luminous indirect amb ent light through translucent faux alabaster diffusers. Lamping optio include two or four 40W twin-tube and 31W Octron fluorescent. Lumi naire is said to be lightweight, and minimize ceiling/fixture contrast. Excelite, Inc., Altoona, Pa.



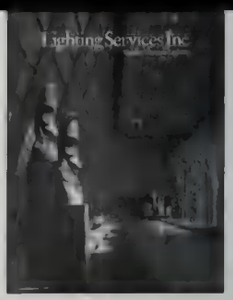
420. Architectural fiber optics
Fiberstars fiber-optic lighting systems are said to offer a colorful, more economical alternative to conventional electric strips in applications from pathway and safety lighting to building and bridge outlining. An eight-page design guide illustrates lighting effects and details mounting options. Fiberstars, Inc., Fremont, Calif.



421. Adjustable downlights
The Centron compact-fluorescent downlight offers a post-anodized fa etted reflector that can be adjuste for wide or narrow beam-spread ir the field. An optional water-white glass lens reflects light onto the surrounding ceiling. A brochure in cludes photometric, lamping, and other data. Litecontrol, Inc., Hans Mass.



422. Self-ballasted fluorescents
Binder insert on Dulux EL electronic compact-fluorescent lamps shows how they reduce energy costs by as much as 75 percent and last up to 13 times as long as comparable-light incandescent sources. Screw-base bulbs can directly replace incandescents in many downlight, track, and decorative-lamp applications. Osram Sylvania, Inc., Danvers, Mass.

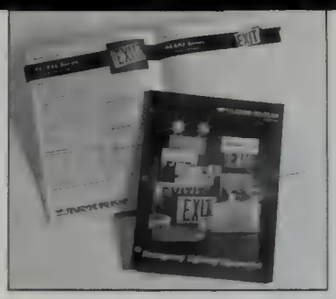


423. Museum lighting
A design portfolio includes full-pa color photos of specific gallery installations, describing the illumination program and detailing the fixtures that met the lighting signer's requirements for both conservation and display of artwo and exhibits. Lighting Services, In Stony Point, N. Y.

For more information, circle item numbers on Reader Service Card.



. Outdoor lighting
4-page brochure describes the vilinear Cutoff line of high cut- post-top and arm-mounted erior luminaires. Four different t distributions, three housing s, and numerous finish options available. Fixtures using HID ps ranging in size from 70W to)W may be specified. Kim Light- City of Industry, Calif.



425. Emergency lighting
A 64-page catalog outlines a comprehensive line of emergency-lighting equipment. Commercial and industrial lighting units, emergency-power systems, exit signs, and central inverter systems are among the products featured. References from the National Electrical Code and Life Safety Code are included. Teledyne Big Beam, Crystal Lake, Ill.



. Lighting-control videos
deotape demonstrating Luméa ting controls, and the LuMaster ral lighting-control system is lable. The control systems pro- central monitoring and venience, according to the manu- urer, and are available in 14 rs. A second tape describes how controls are installed. Lutron, persburg, Pa.



427. Indirect fixtures
The Ensconce Series of interior lighting fixtures uses an adjustable, asymmetric reflector to spread light evenly across the ceiling plane and wall surfaces. Many Ensconce styles are available, including wall-mounted and torchère models. Sources include tungsten, metal halide, and high-pressure sodium. Elliptipar, Inc., West Orange, Conn.



. Surge-protection catalog
)-page catalog allows selection of AC power-line surge suppressor almost any application. Surge pressors featured range from outlet plug-in types to those ca- e of protecting an entire facility, ell as protectors for data-line iers and video and computer net- ks. MCG Electronics, r Park, N. Y.



429. Boom-proof fixtures
The Guardtite series of U. L.-listed explosion- and vapor-proof lighting fixtures have epoxy-coated aluminum housings, guards to protect globes, and lamp compartments isolated from the wiring chamber. A brochure lists photometric data, dimensions, lamping, and mounting options. Guth Lighting, St. Louis.
Continued on page 54

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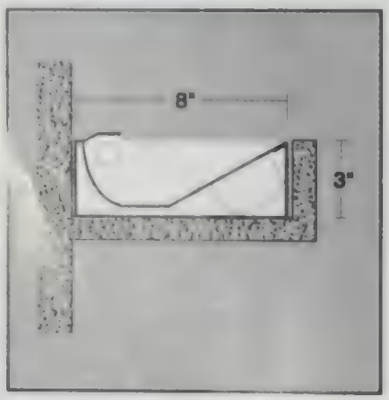
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Neo-Ray introduces the most exciting new shadow-free indirect cove lighting luminaire family available. . .

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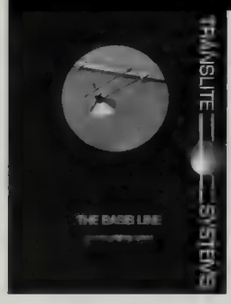


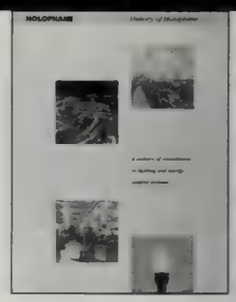
NEO-RAY LIGHTING

537 Johnson Avenue, Brooklyn, NY 11237 • 718/456-7400

Circle 105 on inquiry card

Product Literature/Lighting





430. Open-conductor track
The Basis Line is an open-conductor track system capable of supporting up to 40 amps of low-voltage track lighting. The elegant track can be factory bent to a radius as little as 2 ft. and can easily be mounted into truss or space-frame systems. All components are either U. L. or E. T. L. listed. Translite Systems, Redwood City, Calif.

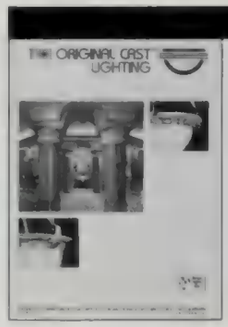
431. Prismatic-lighting brochu
The history of the development an use of prismatic refractors, reflectors, and lenses is detailed in a 12-page color brochure. Other lightin achievements presented include th discovery of the first scientific method for measuring light intensity, glare, and distribution, the fi heat-sink ballasts, and other innov tions. Holophane, Newark, Ohio.





432. Complete fixture catalog
A 48-page color catalog illustrates a complete line of lighting fixtures, including track, recessed, pendant-, and surface-mounted equipment for accent and ambient lighting. Fixtures are available in a full range of incandescent, fluorescent, and HID sources, and in a wide variety of styles and finishes. Regianni U. S. A., Inc., New York City.

433. Portable display lights
The CP Series of low-voltage disp fixtures have telescoping arms, a concealed, integral transformer, a come either with a ceiling-canopy mount or a mobile clamp-mount. A five-fixture set with carrying case can be purchased. The fixtures us tiny MR16 lamp, available in three beam spreads. Tech Lighting, Inc. Chicago.





434. Energy-efficient fixtures
A 28-page catalog illustrates a wide assortment of classic pendants, sconces, and flush-mounted fixtures that come with either energy-efficient compact-fluorescent or HID lamps. The manufacturer also specializes in creating custom light fixtures and in restoring existing antique fixtures. The Original Cast Lighting, St. Louis.

435. Landscape lighting book
Lighting designer and author Jan Moyer's *Landscape Lighting Bo* shows lighting and landscape desi ers how to achieve beautiful inter or exterior landscape lighting. Th book covers lighting drawings, gi fixture and control-systems specifications, maintenance, lighting levels, and more. John Wiley & S Inc., New York City. ■

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Sun Valley Lighting

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Hanover Lantern Commercial Lighting

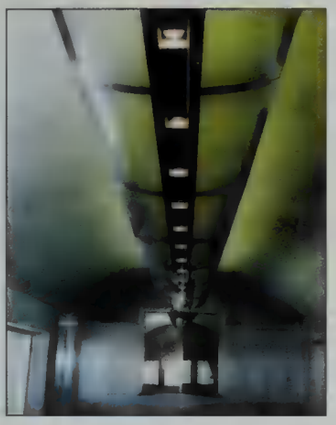


Hanover Lantern designs & manufactures high quality heavy duty cast titanium/aluminum commercial grade decorative lighting fixtures, poles & accessories. A selection of design styles, light source options, light distribution systems, mounting options, computer generated photometric data plus a custom design service are available to the architect or engineer. 470 High St., Hanover PA 173331. Phone (717) 632-6464, fax (717) 632-5039

Hanover Lantern

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For nearly 25 years, Eric Industries has been serving the needs of architects and designers by producing only the finest in custom lighting and decorative metals. Our reputation for quality and attention to detail has led to high profile projects across the US and around the world. Let us turn your custom design into reality. (818)-814-2381.

Eric Industries, Inc.

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In Grade Up Lights



This 36 page catalog covers the new, innovative 9000 Series Ingrade Lighting fixtures. See how modular design makes a difference in performance, installation, maintenance, and durability. Available in a variety of configurations, this series accepts lamps to 175W HID, 250W incandescent. Architectural and landscape illustrations include recommendations for the most common applications. Hydrel, Sylmar, California.

Hydrel

Circle 109 on Inquiry card

Lighting Services Introduces New Condensed Catalog



New 16-page condensed catalog features an overview of LSI's extensive line of track, lighting fixtures & accessories. The catalog illustrates vibrant color photos of the company's most popular fixtures including the Spotlight, Low Voltage & Compact Fluorescent Series as well as CAD drawings of LSI Track & mounting devices. There is also a preview of LSI's newest fixtures, the QM200/QM500 Series, wall wash units & the FO70/FO150 Series, Fiber Optic Systems.

Lighting Services, Inc.

Circle 110 on Inquiry card

Fluorescent Emergency Lighting

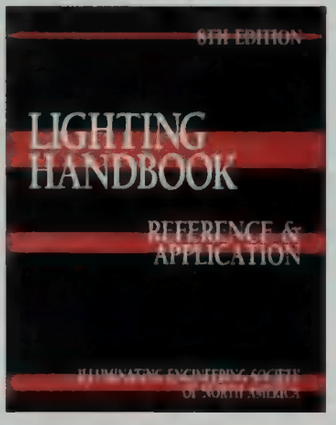


Bodine emergency ballast convert a fluorescent fixture into an emergency light by installation inside or near the fixture. Designed to operate any type of fluorescent lamp. Compatible with ELECTRONIC AC ballasts. Meets state and local fire/safety codes. Independent operation of each fixture during emergency. Quality products for over 30 years. For more information, call Bodine 800-223-5728.

Bodine Company

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IES LIGHTING HANDBOOK

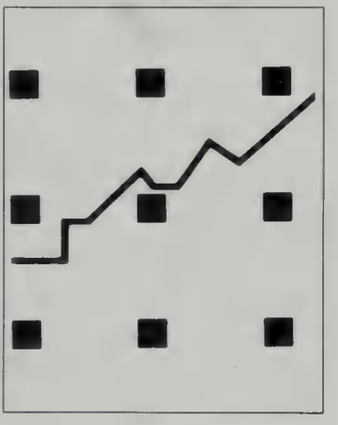


Lighting Handbooks, published by the Illuminating Engineering Society of No. America, are acknowledged as the standard lighting guide. New 8 Edition contains the latest technology, terminology, & acceptable lighting standards & applications in today's energy efficient environment. Highlights include the '93 codes & regulations, elements of design & the design process, illuminance selection procedures, & software for use with lighting economic calculations! Expected Pub. Date is 7/93.

Illuminating Engineering Society

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Keep Dodge in Your Plans!



Don't forget to provide your local Dodge Reporter with the details and plans for your next job. You don't want them to miss out on the best bid for your next job. Contractors can't bid on jobs they don't know about. Thank you for your input. We appreciate your cooperation. F.W. Dodge, McGraw-Hill Construction Information Group.

F.W. Dodge

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(E) Engineering & Retrofit
(I) Industrial Construction & Renovation
(L) Homebuilding & Remodeling
(D) Contract Interiors

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Italics - Reader Service number

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BEGA, **5** ; *81*
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C
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(908) 996-7710

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(203) 932-2266

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Sterner Lighting Systems, Inc., **47,49,51** ; *94,97,100*
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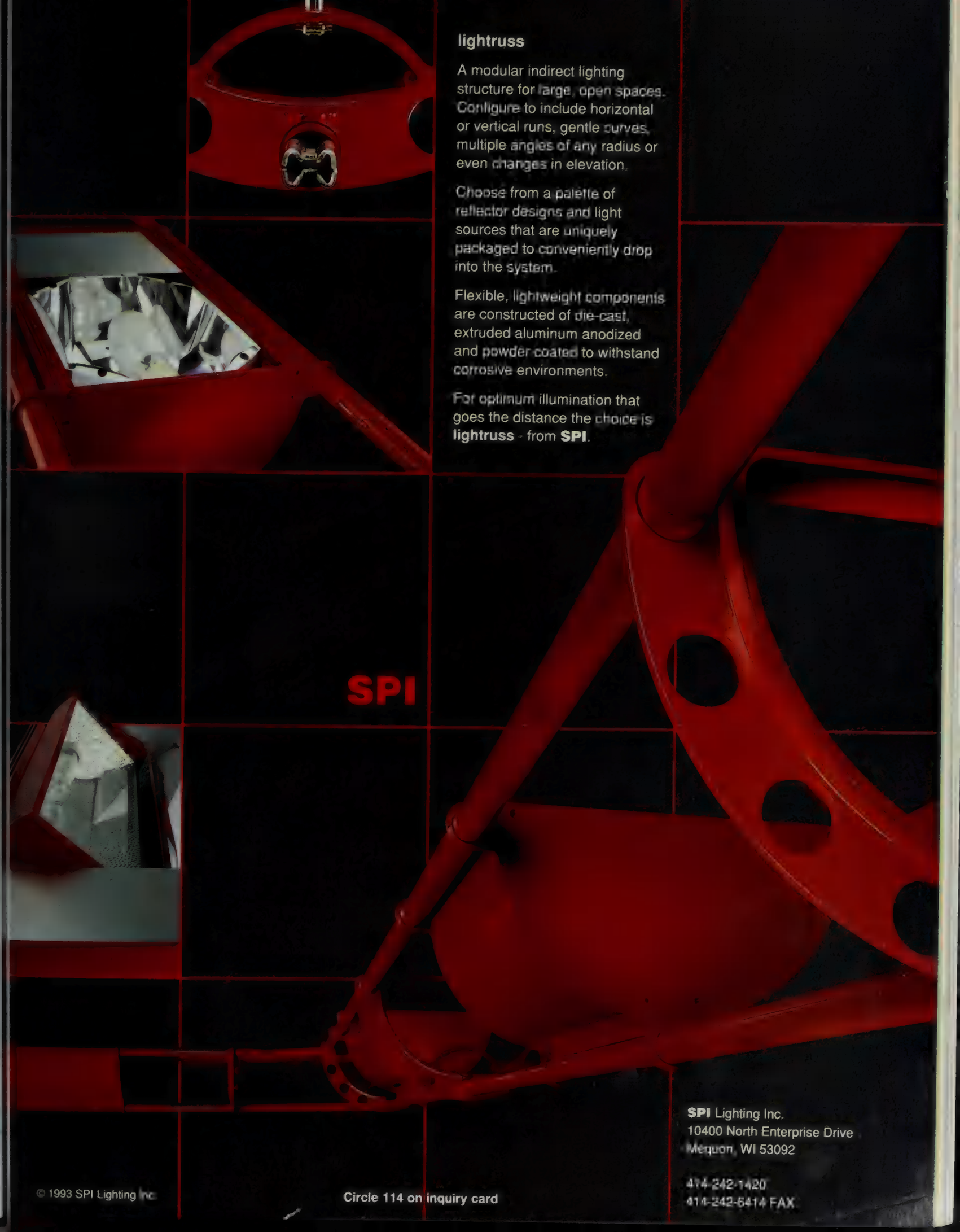
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2D DIRECTIONS

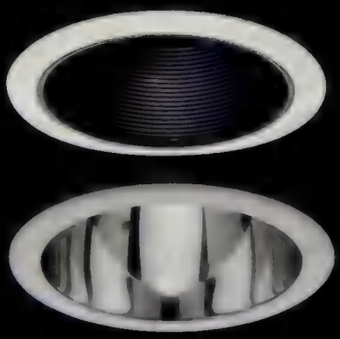
Alta boldly goes where no lighting manufacturer has gone before with the creation of these decorative luminaires featuring the 2D lamp source.



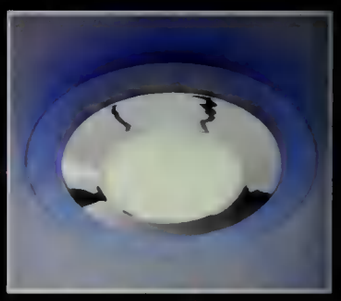
Alta Illuminations Mfg. offers a new direction in energy saving lighting with their innovative series of luminaires, utilizing GE's revolutionary 2D compact fluorescent lamp.

Spanning environments both commercial and residential, this collection premieres the next generation of energy saving lighting technology.

Alta Illumination Mfg. and General Electric - in partnership for an energy conscious tomorrow.



Above: Recessed fixtures utilizing either regressed black baffle, or specular reflector.



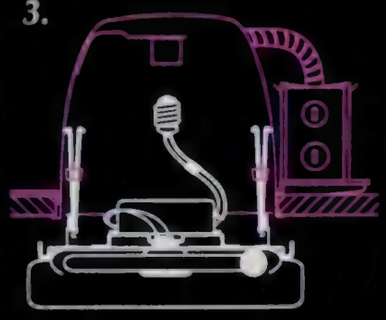
Right: Dramatic suspended 2D lighting

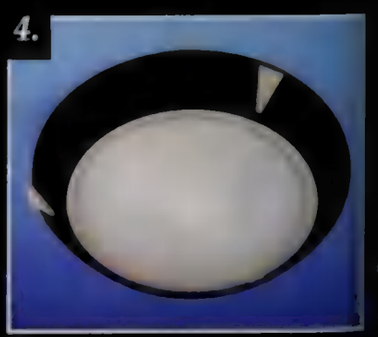




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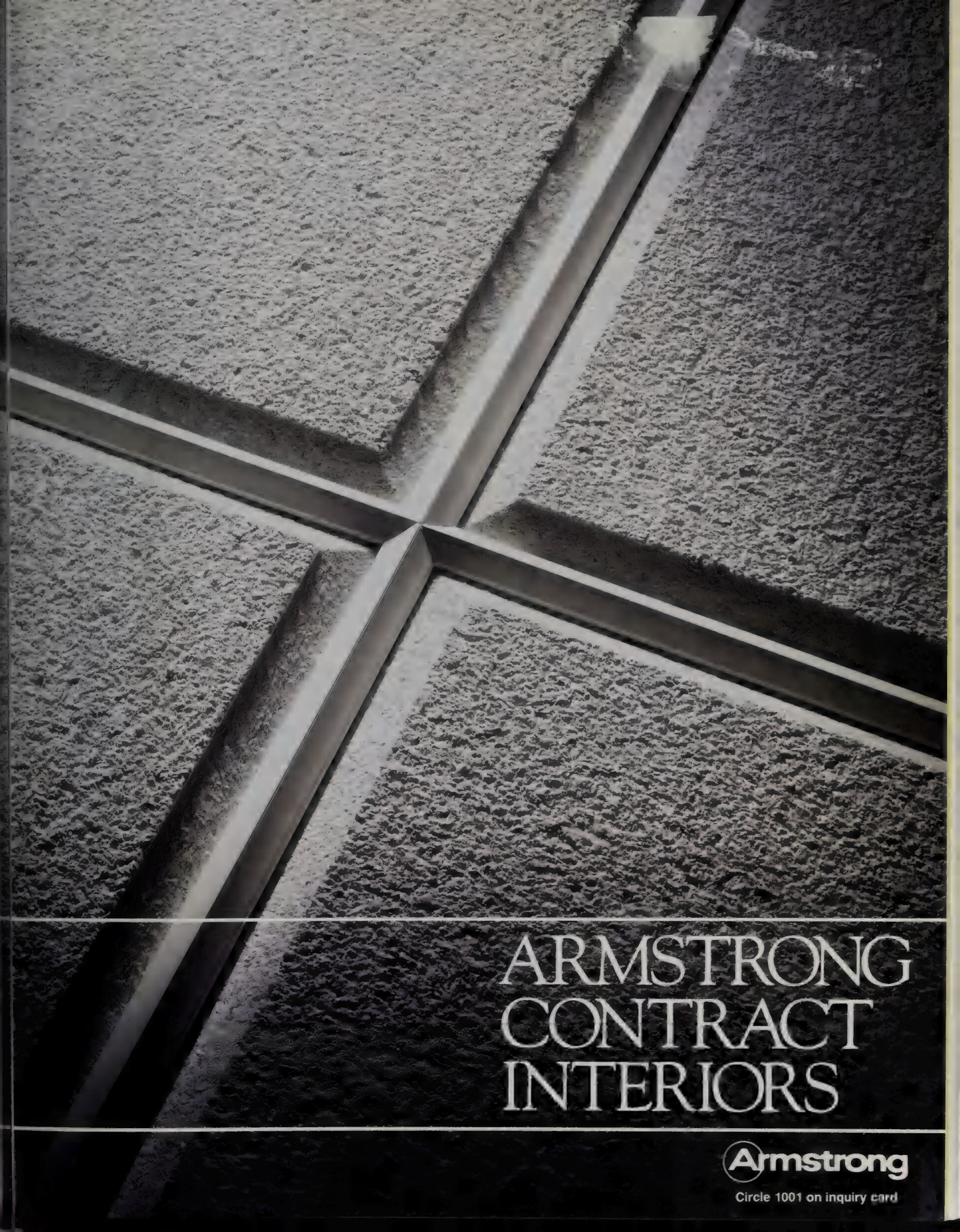
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Downward Fees Spiral
I read with great interest your article in the July 1993 issue [RECORD, page 28] regarding the downward spiral in architects' fees. Of course, those of us who are consultants in specialty fields are experiencing the same problems.

I especially liked Hal Craddock's comment comparing the fees collected versus liability and time investment on the part of the architect, real-estate agent, and lawyers. The truly sad part is that the real-estate agent can sell the building more than once, collecting commissions two or three times, while the architect can design it only once.

It seems a fee structure similar to other creative professions might be in order. Actors and musicians are paid royalties for the rights to use their work. Could architects be paid royalties for the use of their designs? Probably not, but it's a thought. Royalties could be paid from rentable square footage out of operating cash flows. These fees could then be used to pay continuing liability insurance premiums.

Technology and productivity gains are only part of the story in improving profits. Concrete still takes time to set. There are only so many billable hours in a 24-hour day. As our economy moves from manufacturing to services, the erosion of fee structures becomes a critical issue. Creativity is a product and should be [illegible]

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[illegible] Needed

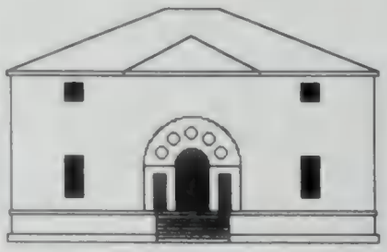
[illegible] story on [illegible] Hospital [illegible]

page 26]. We've been swamped with phone calls and donations of construction materials to complete the project—thanks to your help.

We still need: paint; vinyl floor tile; rubber base; stair treads; wallpaper borders; adhesives; 3 by 3 shower stalls; overbed lights and bulbs; toilet accessories; TV wall brackets; chalkboards; fabric tackboards; and light bulbs.

Would-be donors can call Scott Hazlett at Burt Hill 412/285-4761, or Tanya Koyts at Magee-Womens 412/641-1189.
Richard L. Heaton
Burt Hill Kosar Rittelmann
Pittsburgh

Palladian Portals
In a recent review of Possible Palladian Villas [RECORD, March 1993, page 31], your reviewer prints a villa designed by the computer program described in the book. Unfortunately he did not fully read the instructions and ended up with a plan that omitted all doors and windows. After the user selects the basic plan and then chooses the facade type, he or she should return to the Plan Mode, where the plan will now be properly endowed with openings (below).
George L. Hersey
Co-Author and Professor
Yale University
New Haven, Connecticut



Re-portaled and re-fenestrated.

December 3-February 27
"Arata Isozaki: Works in Architecture" exhibition. The Brooklyn Museum. 718/638-5000, ext. 330/331.
December 6-8
Restoration '93, an international exhibition of products and services on building restoration. Hynes Convention Center, Boston. 617/933-6663.
December 8-11
Healthy Cities conference, San Francisco Hilton, $375 registration. 510/540-2412.
December 11
Symposium on Architectural Practice, Harvard GSD. 617/495-4315. 617/933-9699, fax 617/933-8744.
January 22, 1994
Symposium on "Kahn: Material and Meaning"; papers will be presented followed by moderated panel discussions. Wexner Center, Ohio State. 614/292-0330; fax 614/292-3369.
February 17-May 1
Exhibition on "Daniel Libeskind and the Jewish Museum in Berlin," Art Institute of Chicago. 312/443-3600; fax 312/443-0849.
February 18-May 8, 1995
"Louis Sullivan and the Prairie School" exhibition, Art Institute of Chicago. 312/443-3600; fax 312/443-0849.
Competitions
•Gabriel Prize competition. Write for application forms by December 1: Western European Architectural Foundation, Boston Society of Architects, 52 Broad St., Boston 02109.
•The American Plywood Association offers $10,000 in its annual Innovations in Housing design competition honoring outstanding residential design. Deadline: January 4, 1994. 206/565-6600.
•The Municipal Art Society is accepting submissions to commemorate New York's African Burial Ground. Deadline: January14, 1994. 212/935-3960. ■

ARCHITECTURAL RECORD

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003-858X/93) December 1993, Vol. 181, No. 12. Title reg. in U. S. Patent Office, copyright ©1993 by McGraw-Hill, Inc. All rights reserved. Indexed Reader's Guide to Periodical Literature, Art Index, Applied Science and Technology Index, Engineering Index, The Architectural Index, the Architectural Periodicals Index, the Avery Index to Architectural Periodicals, and the Construction Index.

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ARCHITECTURAL RECORD (ISSN0003-858X/93) published monthly by McGraw-Hill, Inc. Second class postage paid at New York NY and additional mailing offices. Postage paid at Montreal, Quebec, Canada. Canada Post International Publications Mail Product Sales Agreement No. 246565. Registered for GST as McGraw-Hill, Inc. GST Number R123075673

Postmaster: Please send address changes to: ARCHITECTURAL RECORD, Att: Fulfillment Manager, P. O. Box 566, Hightstown, NJ 08520. This issue is published in national and separate editions numbered or allowed for as follows: Regional sections: 10Wa through 10Wb.



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rticular assistance to the editor in the preparation i issue were: Janna L. Robinson; Marcy Stanley; Mazmanian

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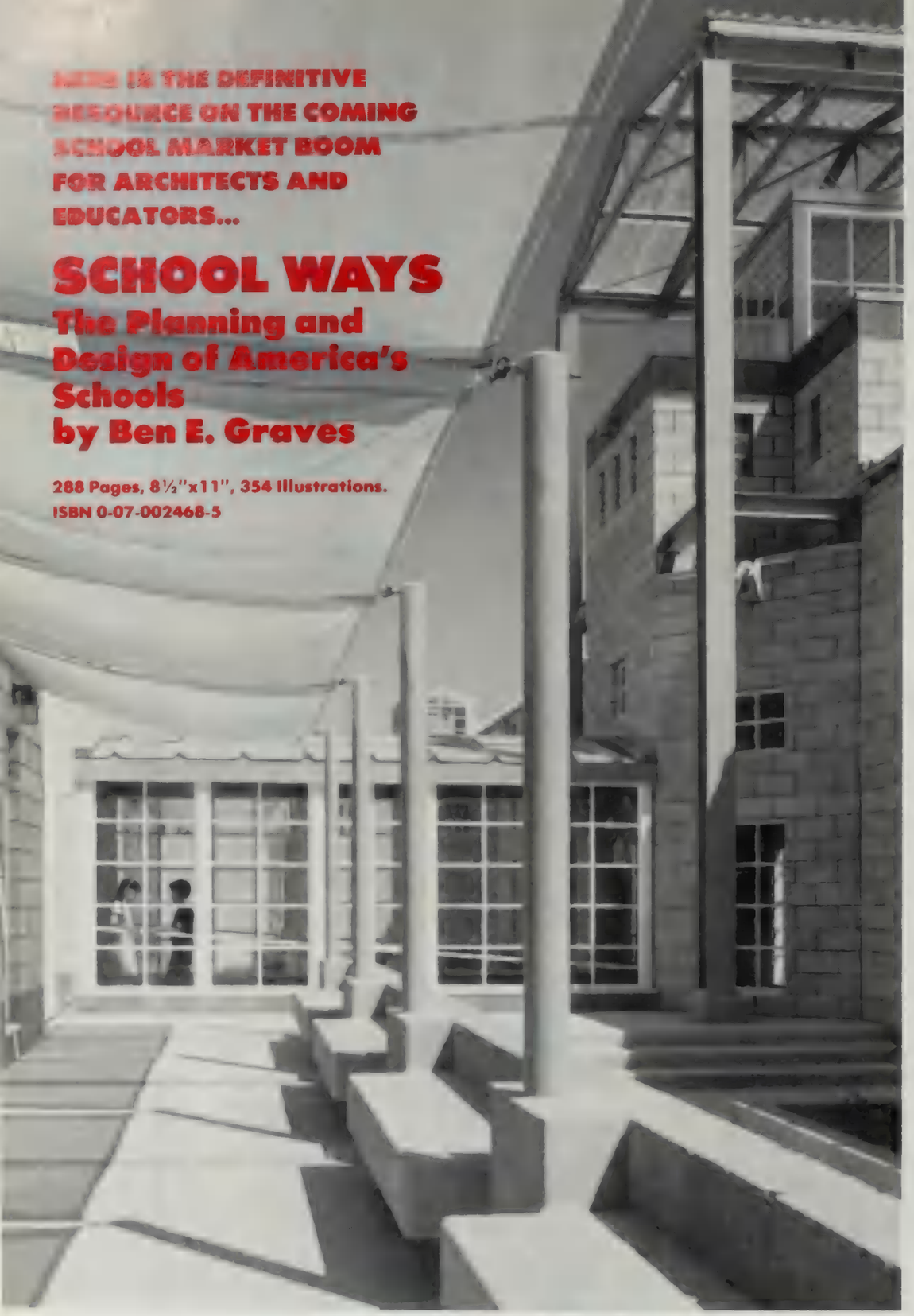
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North America

Year-End Exhibits Celebrate *Outré* Architecture

.os Angeles: "Expressionist Utopias: Para-lise, Metropolis, Architectural Fantasy" at he Los Angeles County Museum of Art (1). /isionary German architecture and stage .nd film design in the years bracketing Vorld War I trace the evolution of utopia vithin the Modernist movement, and the mi-;ration of "the sublime" from nature and .ndscape to industry and urbanism. In-talled by Coop-Himmelblau. Shown: Carl Krayl's "Vision 1920." Through 1/2/94.

Vashington, D. C: "La Casa de Todos Vosotros (A House for Us All)" at the Na-ional Building Museum (2) where 12 sce-arios by artist Antonio Martorell represent he comforts and conflicts of home. Shown: Casa Singer" with a sewing machine as ymbolic hearth in a structure of yardsticks nd tissue-paper garment patterns. Through /2/94, when the show moves to San Juan.

Minneapolis: "Paper Futures" at the Min-eapolis Institute of Art (3), where artist-nventor Stanley Shetka has built a house vith bricks and detailing of recycled paper. Two newspapers equal a brick said to be no nore flammable than wood.) Through /2/94.

lew York City: "Paul Rudolph: Explora-ons in Modern Architecture, 1976-1993" at ne National Institute for Architectural Edu-ation (4) celebrates 15 projects Rudolph ompleted in an era when he and Modernism vere supposed to be passé. Shown:)harmala corporation entry, Jakarta. Through 2/12/94. (The Cooper-Hewitt fea-ures his Singapore Concourse Building nrough 2/13/94.)

lontreal: "Toys and the Modernist Tradi-on" at Centre Canadien d'Architecture (5) nirrors Modernist form, material, and struc-ural technique, and its fascination with small ouses, factories, and skyscrapers. Shown: osef Hoffman's planning kit, made by Wei-er Werkstatte ca. 1920. Through 5/1/94.

an Francisco: "The Color of Elements: The rchitecture of Mark Mack" at the San rancisco Museum of Modern Art (6) traces Mack's integration of Viennese training and alifornia tradition. Shown: Gerhardt resi-ence. Through 1/23/94. ■



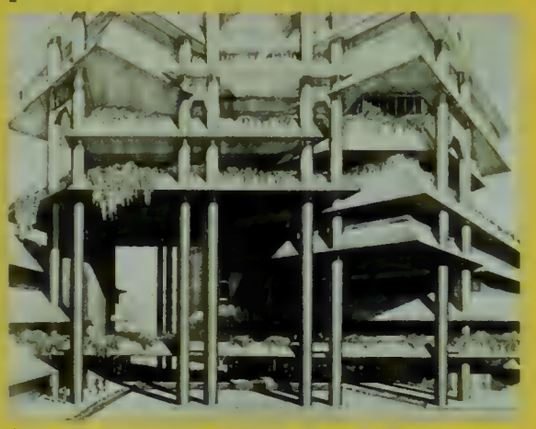
1 *Ungers Collection*



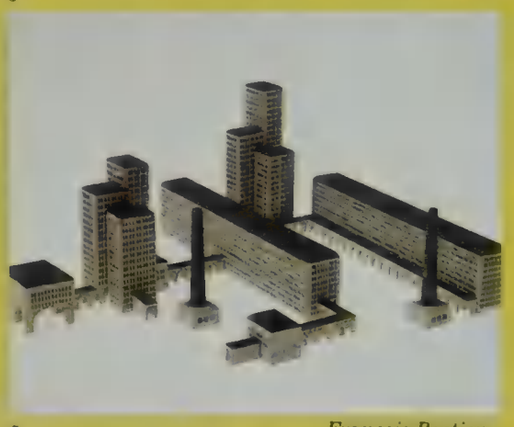
2 *Hiram Maristany*



3



4



5 *Francois Bastien*



6 *Christopher Irion*

Atlanta

Going for Olympic Gold

The first of two design charettes was held this fall as part of a 1996 Olympics design initiative by The Architecture Society of Atlanta and the Corporation for Olympic Development (CODA) in Atlanta. Six teams of architectural faculty, students, and community officials were led by architects Diana Agrest, Enric Miralles of Barcelona, Kemp Mooney, Mack Scogin, and Michael Sorkin, and landscape architect Martha Schwartz. Sorkin called International Boulevard, a designated Olympics corridor linking convention and tourist facilities, "a desperate tarmaced zone," and suggested turning it into a continuous green space (below) connecting three Atlanta campuses. An international design competition is also underway in the city, with winners invited to negotiate with CODA for design commissions. *Lorna Gentry*



Sonny Crowe

San Francisco

Main Library Links Styles in Bows to Civic Center, Commercial District



The San Francisco Main Library by Pei Cobb Freed & Partners and associated architects Simon Martin-Vegue Winkelstein Moris is scheduled to open in 1995.

At first glance, James Ingo Freed's 376,000-sq-ft, $139.5-million facility comes across as Neoclassical, because a grid consisting of cornice, frieze, architrave, light granite panels, and traditional windows covers more than half its exterior. Freed's building is "quite clearly a Modern building," he says. The gridding is out of respect for the existing structures, including the surrounding Neoclassical buildings and Arthur Brown, Jr.'s City Hall, which the library faces across Civic Center Plaza. The library's height complies with current 80-ft Civic Center height restrictions. Plans to change the old library to a museum for Asian art are on hold.

Freed shifts smoothly from the Neoclassical Fulton and Larkin Street facades to Modernist facades on Grove and Hyde Streets, which lead into the area's commercial district. The Grove Street treatment (above) is particularly subtle: the entablature turns the corner from Larkin, is sliced by recessed atrium windows, and then fades out to a hint of itself in the middle expanse; the final portion is completely Modern, with large perforations balancing the building's mass.

The Hyde Street facade features terraces and linear windows recessed into the structure, and reveals the roof protrusions of the atrium, periodicals reading room, and the San Francisco history room. The 60-ft-diameter atrium adds not only daylight, but also, in Freed's words, "a point of reference." *Susannah Temko*

Massachusetts

New College Studio Building to Gather Arts Under One Roof

The Carlos Jimenez design for the Spencer Art Studio Building at Williams College will gather [illegible] drawing, painting, pho- [illegible] sculpture and video [illegible] throughout the [illegible] with [illegible]



Paul Hester

aly

tayed-Cable Fashion Factory Is Eight-Month Wonder



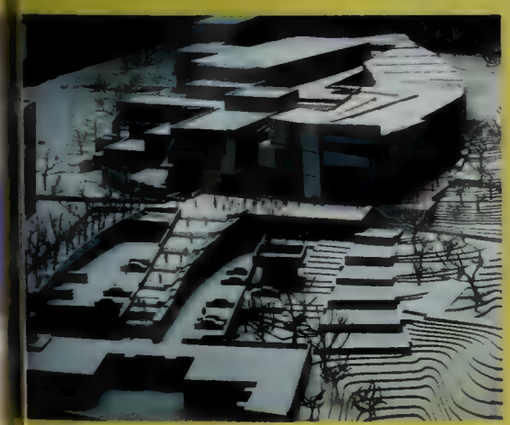
Marco Zanta

stayed-cable system at the latest Benetton ctory at Castrette di Villorba in Treviso eates a central goods-handling tunnel feed- g off two structure-free workshop wings 0 ft wide and 575 ft long. Seven pairs of -ft masts and five miles of steel spiral rope anchor the trusses to the reinforced concrete interior walls that form the 128-ft-wide tunnel, and support roofing and exterior curtain panels. According to architects Afra and Tobia Scarpa (he is the son of Carlo Scarpa), up to now this type of construction has been used only for bridges and a few sports centers. The factory was erected in eight months. Computerized controls balance electric and daylight to prevent misreadings of fabric colors. *Judith Davidsen*

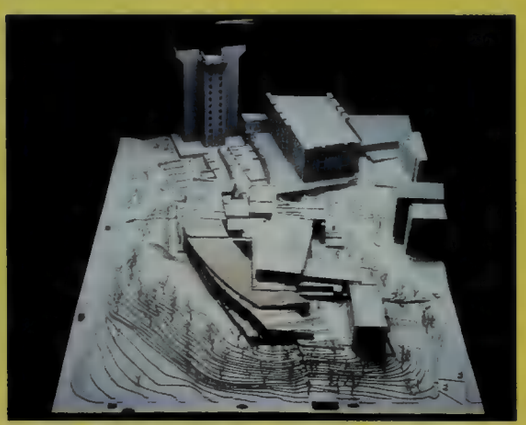
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A Many-Meaning Dream House for Art, Architecture, and Design Students

onstruction begins in March 1994 on an ad- ion, designed by Eisenman Architects in sociation with Lorenz and Williams, Inc., at will reorganize and double the space at e University of Cincinnati's College of De- gn, Architecture, Art and Planning. The sign, according to the architect, draws out d connects imaginary extensions of both e undulating knoll where the structure is cated and various realignments of the evron patterns that the existing box-like ildings create on the site. The fractured dition wraps the originals with new studios, laboratories, offices, an auditorium, a library, and a skylighted atrium (dark central triangle) for juries and exhibitions. Eisenman says the building has the capacity to express the "many different meanings" art itself absorbs from the current culture. The project was one of two designs representing the U. S. at the Fifth International Exhibition of Architecture at the 1991 Venice Biennale. New quarters notwithstanding, the first assignment for entering architecture students will continue to be designing and living in cardboard shelters. ■



ne Glenn



Dick Frank Studio

New York City

Looney Tunes Takes Over Chic Corner



Scott Frances

It's hard to miss the newest Warner Brothers Studio Store. Between the first and second floors on the prestigious corner of Fifth Avenue and 57th Street, legendary Looney Tunes characters cavort in a series of Art Deco bas-relief panels cast in crushed and poured limestone. Above the bas-reliefs, 20-ft-high windows afford a three-story view of video walls and whimsical displays, including Superman pushing an escalator upward. The store is the work of Michael L. Leclere Associates, James Mansour, Ltd., and John Greenberg & Associates. *Marcy Stanley*

Texas

Houston Zoning Shot Down Again

For the third time, Houston voters have defeated zoning—this time by a referendum on November 2. With a low turnout of barely 20 percent of registered voters, the zoning ordinance that had been in the works for three years was rejected by a narrow 52-to-48-percent margin. The referendum was the result of a heated debate begun earlier this summer as opposition to zoning finally gathered momentum. A petition drive forced the issue onto the November ballot despite the fact that the city council had accepted the ordinance in three separate votes and built a large bureaucracy to administer it. In the past, opposition to zoning was led by developers and property owners fearing controls on land speculation and development.

This time was quite different. Supporting and opposing groups consisted of a wide mix of interests and the real-estate community was likewise split. Surprisingly, it was the low-income districts, where land-use controls might have had the most effect in protecting residential neighborhoods from offensive land uses, that most solidly voted against zoning. A last-minute fear/smear campaign by the well-financed opposition may have been the deciding factor. Outgoing councilman Jim Greenwood, a victim of term limitations who sponsored the zoning ordinance, may keep the issue alive, but it could be three years before it can be brought back to the voters. *Gerald Moorhead, Houston*

Fruits of unbridled expansion



Gerald Moorhead

Practice

Briefs

GSA projects still on hold
"We should be hearing decisions on the first projects under consideration soon," says GSA spokesman Hap Connors. On September 8, GSA administrator Roger W. Johnson announced a hold on 188 construction, renovation, and leasing projects worth $7.4 billion while a study is conducted to see if all the new space is needed and whether costs are reasonable. "This won't be like the military-base closings," promised Connors, referring to the protracted process of announcing those facilities' fate. He promised all decisions would be made by next March. The outcome? "We anticipate savings," said GSA deputy administrator Julia Stasch last September, "but we don't know where they're coming from."

Filling out new 255/254 forms
Whether the GSA stays in the building business at present strength [see *GSA projects still on hold*, above], many architects are applying for federal commissions—so many, according to Nancy Watson, that her recently completed nationwide round of ACEC-sponsored seminars on filling out application forms 255/254 has been swamped by eager architects and engineers.

She plans a new round starting in February. Revisions to the forms, effective November 1992, have triggered part of the interest, but they are not major: A new column to fill out on page 1 lists the number of personnel in consultants' offices, and a requirement for clients' contacts and telephone numbers is added on pages 8 and 9, which list applicants' project experience. Of more interest in the seminar are tips on knowing the content federal clients are looking for in the forms: "Experience," says Watson, "and not just any experience, but experience directly related to the project at hand." She adds: "Get to know your local administrator, who may very well stretch such rules as limitations on the amount of information on relevant projects that can be provided in the limited form blanks. It can make all the difference." Watson's organization, A/E Management Services, also offers software to generate the new forms for a special price of $375 until December 31. For information, call 313/761-9400.

Pushing partnering
In a RECORD editorial last March, editor Stephen Kliment strongly endorsed partnering a procedure in which all parties on a construction project meet periodically to iron out potential disputes and avoid delay claims, mediation, arbitration, and other more drastic recourses, such as litigation. Now insurer DPIC has come out with an offer to provide a "facilitator" at no cost for these meetings within the scope of its policies for specific projects. "Delays, cost overruns, and lawsuits can often be tracked back to ingrained adversarial relationships," says DPIC president Peter Hawes, who clearly believes his company may save money in the long run. "We have always promoted partnering," concurs vice president Ava Abramowitz of Victor O. Schinnnerer & Co. "We have been available to meet with the team under our standard project insurance policies all along."

Knowing state licensing laws
Information on states that let architects compete with engineers, that exempt potato cellars from the need for professional-design services, and that can levy civil fines for unlicensed practice, is contained in a new AIA publication, *Architectural Licensing Laws*. The document describes how each state conducts its professional requirements. For information, call the AIA at 800/365-ARCH. *C. K. H.*

iterature Citations

Winners

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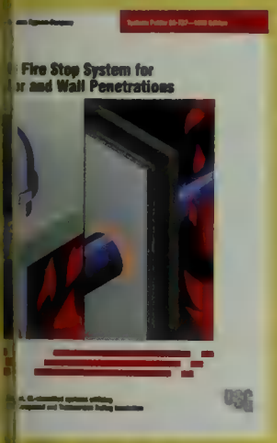
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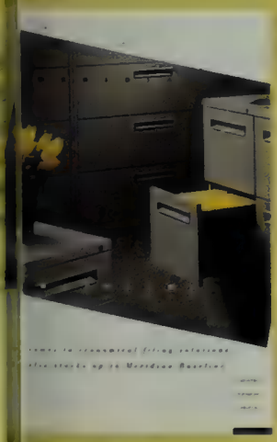
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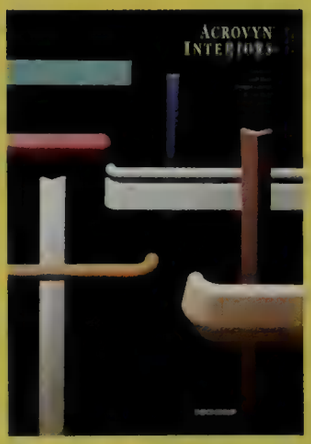
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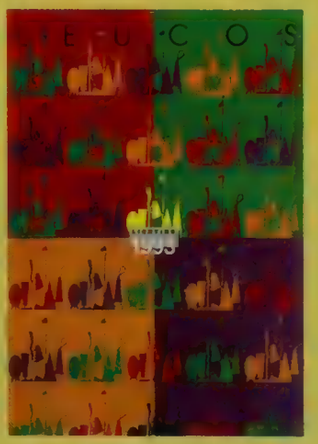
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California Wildfires

Disaster Reopens Development Debate

Architects have contributed mightily to a much-sought-after lifestyle in California. Houses perched in precipitous canyons offer a treehouse-like isolation. Branches of native brush arch elegantly across patios. The diabolical quality of this coastal Eden is that those locations most prized often prove to be most prone to natural catastrophe, as the brush fires of late October and early November proved yet again.

The last hot spots were not even doused when the debate over development adjacent to wild lands raged anew. In a landscape where fire is integral to the ecology, and burning brush is likened to an exploding fuel tank, Californians are often either resigned to nature's forces or figure the odds are not that bad. Think again, says Patrick Pagni, a professor at the University of California, Berkeley, and a fire physicist: "Researchers' fire maps show that every 30 years every part of Southern California burns."

There are those who say development should be halted in areas near undeveloped forests or in canyons filled with dense, volatile brush. Deference to private-property rights has always made this course impossible, however. State legislation passed in the wake of 1991's terrifying fires in Oakland asks homeowners to trim flammable brush to at least 30 ft from homes. Even this pallid requirement doesn't take effect until 1995. (Local officials are permitted to require greater distances; Pagni says research suggests clearing up to 100 ft may be needed.) Some towns have enacted stricter requirements, banning wood roofs (even though shake and shingle makers say new pressure-treated types can be mounted in a Class A fire-resistive assembly). Officials also encourage enclosed eaves (flaming brands get drawn into rafters or attics), stucco or other noncombustible cladding, and water-retaining plants. News coverage showing older burned houses next to newer, less combustible ones suggests a tentative vindication of these requirements. Pagni says double-glazing offers additional security.

Other measures are harder to put into practice. Fire officials recommended widening the winding roads of the East Bay Hills after the Oakland fires, and asked for gentler grades. Communities found this costly and felt these changes would make their community less attractive. This year, many houses were lost when water pressure ran low (one reason enacting residential fire-sprinkler requirements generally hasn't happened). Communities often can't afford the reservoirs, pumps, water lines, and hydrants fighting wildfires demand. *James S. Russell*

A 20,000-acre fire that began in Calabasas, a mountainous region northwest of Los Angeles (left), nearly reached the ocean at Malibu (right).





Reuters/Bettman photos

Books

Briefs

Art and Technology Up to the Scientific Revolution, *edited by Robert Mark. Cambridge: MIT Press, 1993, 254 pages, $39.95.*
A basic treatment of the technology behind the great pre-industrial movements in Western architecture. The text is so clear that even curious non-architects will find it pleasurable to read. Amplified by good photos, drawings, and diagrams.

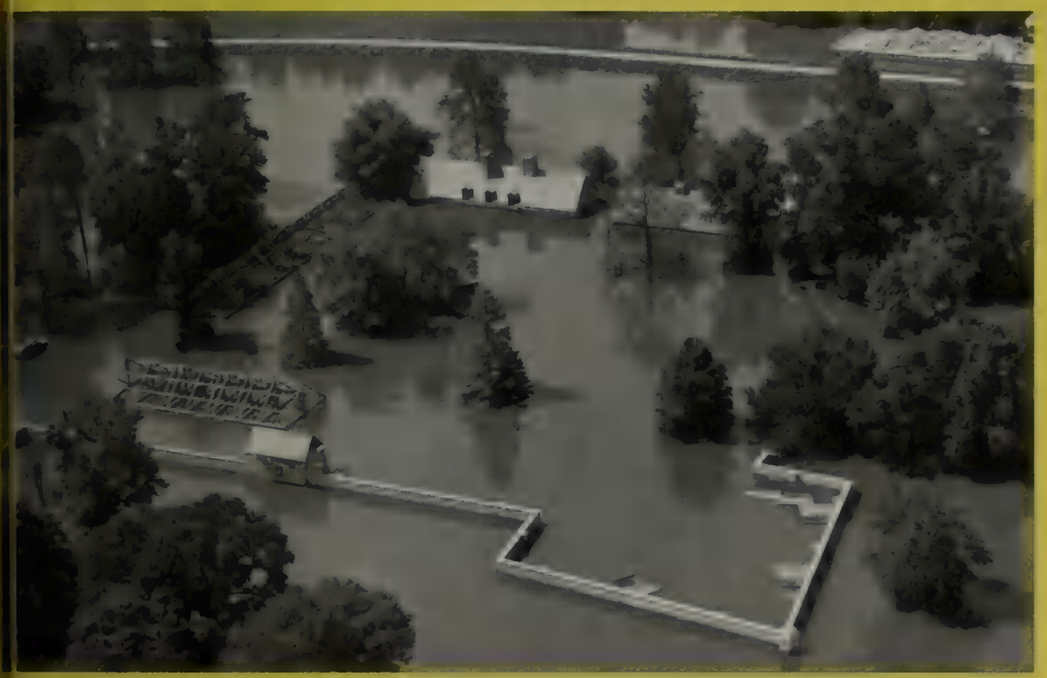
Designing the Future: The Computer in Architecture and Design, *by Robin Baker. New York: Thames and Hudson, 1993, 209 pages, $45.*
Lavishly illustrated, the book describes recent directions in the way computers are used for visualizing architecture, product design, fashion, film, and graphic design. Its descriptions of concepts like hypertext, ray tracing, and virtual reality are particularly useful for the mystified computer novice.

Building Code Quick Reference Guide, *by William J. Brummet and Alec W. Johnson. Belmont, Calif.: Professional Publications, Inc., 1993, 128 pages, $29.95.*
The authors have organized building-code data in tabular form by occupancy. The format allows fast review for preliminary design. It references requirements only of the Uniform Building Code, however.

Graphic Guide to Frame Construction, *by Rob Thallon. Newton, Conn.: The Taunton Press, 1991, 225 pages, $29.95.*
The author aspires to an *Architectural Graphic Standards* for wood-frame construction. Indeed, information is comprehensive and conveyed through drawings of impressive clarity.

Water in Exterior Building Walls, *Thomas A. Schwartz, editor. Philadelphia: ASTM publication STP 1107, 1991, 233 pages $47.*
A series of technical papers that diagnose common design and construction problems in curtain walls, EIFS walls, and sealants.

esigners Offer Recovery Solutions



ooded Fort de Chartres, a historic site near Prairie du Rocher, Ill.

ollen rivers have been receding since y, but the repercussions of last summer's rents will affect development and con- uction in the Midwest for years to come. chitects in affected areas assisted in relief orts by doing everything from sandbag- g to inspecting damaged buildings. Now ny are seeing a place for the design pro- sions in long-term recovery.

ere is work for architects in repairing or uilding houses to meet flood-resistance ndards—when owners can afford it. As v as one in ten eligible residents took ad- ntage of federal flood insurance, which ks up high-risk owners conventional in- ance doesn't touch. Many were not ormed of their eligibility by insurance nts, reports Bill Powers, a hazard mitiga- n officer with the Federal Emergency nagement Agency (FEMA). The federal vernment underwrites such insurance if nmunities adopt building requirements ered under the National Flood Insurance program. These include raising the main living floor to a level at or above a 100-year flood. "There were instances of one-story structures being flooded to the eaves and two-story houses with water halfway up the second floor," explains Powers. "If those flood heights approximate the 100-year flood, we're talking about elevating the first floor to be at or above these marks."

This isn't the only solution, or even always a reasonable one. (For one thing, insurance doesn't cover the additional cost of meeting the FEMA requirements—it simply covers the value of actual damage sustained.) Valmeyer, an Illinois town of 900, may, instead, relocate itself. The St. Louis chapters of the AIA, American Planning Association, and American Society of Landscape Architects met with residents in mid-November in a charette to sketch a future for the town on 500 acres relocated on higher ground two miles east of its present site. Other communities may consider similar solutions. The combination of Army Corps of Engineers levees and those of smaller levee districts "had the effect of heightening the crest of floods," says Ed Templeton, director of the Water Resources Program at the National Audubon Society. With so many levees, they "denied the river the opportunity to flood wetlands, which act as a relief valve." Moving communities out of the path of floods and restoring more agricultural land to wetlands may take some pressure off the levee system. Thus, FEMA and the Corps are watching the Valmeyer process closely. With intense citizen involvement, charettes can create a consensus and a framework to change disaster-susceptible construction and development patterns.

With the cooperation of FEMA, teams of architecture students from the University of Illinois, Urbana-Champaign, analyzed needs in six small Illinois communities. According to Kevin Hinders, assistant professor of architecture who led the teams, one study envisioned a town "that could become a kind of medieval city, with a levee completely around it." Hinders says that "112 towns in Illinois were affected by the flood. Though we're not doing professional services, we're asking whether we can scope a package of services to send to FEMA. We're entering into a working relationship with towns that have no one who does anything like this. In a way we're creating a range of opportunities out of these problems."

Historic preservation has become what Michael Jackson, a preservation officer with the state of Illinois, calls a "touchstone issue." While waiting for flood waters to drain from historic sites (above), Jackson is working in damaged towns, where historic designation is seen as a tool to recovery and grants for restoration of buildings as a means to spur economic development. He says FEMA is sympathetic. "They don't want to be seen as an agency that caused a community to lose the things it values." *J. S. R.*

Ready or Not, Construction Recycling Is on the Way

By Lynn Nesmith

Today, many architects' most significant contribution to community recycling efforts ends with separation of bottles, cans, and newspapers at home for curbside pickup. Since landfills are nearing capacity in many parts of the country, and not-in-my-backyard sentiment is preventing the location of many new ones, construction waste is on its way to becoming a prominent focus of recycling efforts. After all, construction and demolition (C&D) waste comprises from 23 to 33 percent of municipal solid wastes.

The impetus for the design and construction industry to recycle is driven by a variety of forces. Out of a commitment to ecological principles, a growing number of architects are incorporating re-used and recycled materials, and searching for ways to reduce on-site construction waste. But as Minneapolis architect Peter Vesterholt points out, "Sustainable architecture will be embraced by the mainstream of the profession when recycling and resource efficiency are practical matters of supply and demand rather than ideological issues."

These are now coming into play. To slow the flow of waste to landfills, local governments demand more recycling and have steeply increased the tipping fees at dumps and transfer stations. The combination of higher fees and longer distances to open landfills is forcing builders to seek alternatives. (In other locations, water shortages are pushing another form of recycling, the re-use of nonhazardous "gray" water—from handwashing sinks, for example—to irrigate landscaping, which in turn is increasingly designed using so-called xeriscape principles that reduce water demand.)

Until recently, the bulk and weight of C&D debris has been its primary disposal issue. Landfills resist accepting the debris because it takes up too much space and is hard to compact. Waste-to-energy facilities don't want it because the majority of C&D waste is not readily combustible. As pressure rises on disposal authorities to reduce the hazardous content of waste, C&D debris has come under increasing scrutiny and found to be not as benign as once believed. There is the obvious case of asbestos, which requires special disposal methods. (Worse, it's sometimes incorporated in older roofing felts, vinyl composition flooring, and asbestos-cement panels, among other products.) Even "natural" lumber and plywood waste may have been been treated with preservatives that pose disposal problems. Ozone-layer depleting chlorofluorocarbons (CFCs) in cooling equipment must be recycled [RECORD, June 1993, page 24].

Lynn Nesmith, a former senior editor at Architecture *magazine, writes on architecture and environmentally oriented design.*

A role for producers

Product manufacturers are facing many of the same disposal issues as consumers, and are responding by reducing waste, and increasing internal reprocessing and recycling. While some products have always contained significant recycled or reprocessed content, community recycling is creating new sources of low-cost raw materials that were once rare or expensive. More manufacturers are exploiting these resources: glass for "glassphalt," newspapers for cellulose insulation. Packaging represents a shockingly large percentage of landfill material, and some manufacturers are moving back to reusable packing and readily recyclable shipping materials. Once there was a stigma against products containing byproducts or recycled materials. Today manufacturers prominently advertise recycled or reprocessed content. Market research shows that as many as four out of five consumers prefer "green" products.

Other countries show the way

With full landfills, and higher population densities, Europe and Japan have developed recycling to a high art. Some hard-to-dispose-of materials, such as PVCs, have been banned in some locations (though PVC makers claim it is unfair and will be overturned). High-profile projects in Germany must now account for the energy embodied in the manufacture of components, their recycled content, and the potential for disassembly and re-use of components. (The widely publicized efforts by BMW and Volkswagen to design cars that can be disassembled for the salvage of parts and the recycling of materials reflects an even mo impressive effort on the manufacturing level.) In Germany and other countries, ar environmental approach has become key t winning important competitions.

Research is increasing in the U. S., thougl Virginia architect Jorge Pardo, former dir tor of product research for the National Concrete Masonry Association, is develop construction techniques that are easy to modifiy and disassemble. A masonry subs tem for residential construction features mortarless concrete blocks supported on steel track and held together with vertica structural ties.

Dividing to conquer C&D waste

While building products can reduce the waste stream by being readily recyclable it's even better if a product's manufactur process can make use of cast-off material The Environmental Resource Guide (ERG AIA's comprehensive subscription servic technical data intended to assist architect evaluating the environmental consequenc of design decisions [RECORD, October 19 pages 36-39]—describes different approaches to materials recycling:

- *Closed-loop recycling* is the process in which a product is recovered and returne the same manufacturing process as befo (used glass beverage bottles reprocessed into new beverage bottles).
- *Open-loop recycling* is traditional "postconsumer" recycling that recovers used products for the manufacture of dif ent materials and products. Examples ar steel cans that are recycled into concrete inforcing bars or plastic bottles reproces as carpet backing.
- *Co-product allocation* is a process ger ally applied to industrial waste. For example, the leftover aluminum when a round lid is stamped from a rectangular sheet can be reprocessed into a different product rather than disposed of. Allocat in ERG terms, refers to the percent of e ronmental and energy impacts of the ra material that should be attributed to bot the primary product and the secondary uct made from recycling scrap. The cha (opposite) gives an overview of recyclin issues for widely used building components.

Construction waste, a sizeable percentage of landfills, has become a target for recycling and reprocessing. Architects, builders, manufacturers, and solid-waste utilities are cooperating to make recycling easier.

Recycling in Common Building Components

DIVISION/ PRODUCT	RECYCLED CONTENT		DISASSEMBLY	RE-USE	DISPOSAL
	Reprocessed	Post-consumer			
2 Sitework					
Site Furnishings		Exterior rubber tiles (tires); geotextiles and some site furnishings (plastics)			
Asphalt Paving		Old paving recycled; glass from bottles used as aggregate			Huge % landfill by weight
3 Concrete					
Concrete Materials	May use fly ash, byproduct of power plants	Cost barriers limit recycling of concrete to new aggregate	Precast seen in Europe as acceptable demountable system	As ballast, fill	May represent up to 53% of landfill volume
Reinforcing		Most steel is made from at least some scrap	Reinforcing can be magnetically recovered	Recyclable	
4 Masonry					
Brick and CMU	CMU may use fly ash, a byproduct of power plants		Brick and some stone salvaged.	Remortaring used brick not recommended	Masonry is significant component of landfills
Stone			Stone panels readily disassembled; unit masonry not	Re-usability of stone varies with type	
Simulated Stone	Reprocessed stone aggregate				
5 Metals					
Steel Framing	Typically	Most steel is made from least scrap	Readily salvaged	Readily reprocessed	Most likely material to be salvaged/recycled
Brass, Copper, Lead	Typically	Copper usually includes recycled content	Copper and lead pipe readily salvaged	Many brass items have salvage value	Items usually too valuable to landfill
Metal Decking	Aluminum and steel types	Higher content for steel than aluminum	Not readily separated when used as concrete form	Easier to recycle steel than aluminum	
6 Wood & Plastics					
Lumber			Heavy timbers increasingly salvaged	Heavy timbers re-used in structures	
Panel Products	Represents a significant percentage of product	Fiberboard underlayments (newspapers)		Plywood formwork; packaging, pallets	Biodegradable; can be incinerated
Engineered Wood	Substantial scrap content in laminated fabrications, hardboard siding, and OSB web of joists	Hardboard siding may have recycled content			Can be incinerated
Treated Wood				Wood-treatment materials may reduce potential for re-use	Treated wood may not be suitable for incineration
Plastic Fabrications		Some types have recycled content		Solid fabrications may be re-used	
7 Thermal & Moisture Protection					
Insulation	Some mineral wool made from blast-furnace slag	Cellulose types made from recycled newspapers; recycled glass is used for some glass-fiber types	Some panel and batt products are readily removed and re-used	Polystyrene be remolded; others can be, but rarely are recycled	CFC blowing agents used in some foam-plastic panels will escape whether in use or disposed of
Asphalt Roofing				Torn off shingles and BURs being reprocessed as asphalt product additives	Shingles and roofing felts a significant percentage of landfill volume. Older materials may contain asbestos
Single-Ply Roofing	PVC types may have some reprocessed content	PVC types; testing underway for other types			PVC has been banned in European jurisdictions
TileRoofs		Plastic tiles recycle computer housings		Ceramic types can become clean fill	
Metal Roofing	Significant in steel, aluminum and copper	Significant in steel and copper; growing for aluminum	Most types readily salvaged	All types can be recycled	
8 Windows & Doors					
Window & Door Frames	Wood frames now largely made from small, finger-jointed pieces	Steel, aluminum, and vinyl frames can be made from recycled scrap	Potentially all types	Metal types can recycled; re-use of vinyl-clad types most difficult	Windows readily salvaged
Glass	Glass cullet has a variety of uses	Little	Readily, little demand	Readily recyclable	
9 Finishes					
Suspended Ceilings		Some panels recycle paper and mineral wool	Readily disassembled	Suspension system readily recyclable	
Gypsum Board		Recycle gypsum, paper		Recyclable	Some landfills don't accept gypsum board
Tile	Some from reprocessed glass				
Wood Flooring	Veneer types contain some scrap		Some high-value floors are salvaged		Can be incinerated; biodegradable
Resilient Flooring	Most types reprocess scrap			Vinyl floor recycling programs have started in Europe	Some PVC manufacturing waste is hazardous; linoleum is degradable; older vinyl-composition materials may contain asbestos
Carpeting	Some cushions made with reprocessed fibers, foam, and other materials	Terapthalate (PET) carpets made from recycled beverage	Readily removed	Nylon, polypropylene, and polyester can be remolded, but separation from carpet substrate is difficult	Is significant volume of landfills
Paint	Some use of reprocessed material; solvents are increasingly captured in manufacture factory application reduce air emissions	Use of some recycled content is being tested	Lead-paint abatement must be done by experts	Pilot programs blending and giving away disposed, unused paint	Some paint-manufacturing waste is hazardous; communities recycle unused paint; disposal of lead-based paint in renovations is highly regulated
15 Mechanical 16 Electrical					
Piping		Copper and steel fittings may have recycled content	Piping readily dismantled		
Cooling Equipment		CFC coolants must recycled	Reclaiming CFC coolants from equipment required	Recovered CFC-type coolants soon to be only source	Older piping and ductwork may be insulated with asbestos
Lighting	Lamp glass scrap a source for tiles		Some fixtures salvaged	Fixtures can be refitted with high-performance reflectors	Older fluorescent-light ballasts could contain highly regulated PCBs

Sources: ERG, industry groups

Will clients buy recycling?
Clients rightly remain concerned about the cost of recycling versus landfilling, and about the performance of products that use recycled materials. Recycling decisions made by the Natural Resources Defense Council (NRDC) and the National Audubon Society in new headquarters projects were subjected to rigid cost accounting, according to Kirsten Childs, partner in the Croxton Collaborative, which designed both projects. (The biggest payback of all may have come from "recycling" distinguished older buildings.) Because they link environmental benefits with a demonstrable economic payback in construction costs and energy savings, the projects represent a common-sense approach that appeals to other once less-enlightened clients.

Reducing waste at the jobsite
Some components contribute more to disposal problems than others. The C&D material stream can be divided into three main categories: Concrete, asphalt, and rubble make up approximately 50 percent of C&D waste by weight; wood products, including manufactured and treated wood and stumps from land clearing, account for about 25 percent; other materials, including such metals as steel and aluminum, plus glass, roofing, gypsum wallboard, plastic, and so on, constitute the remaining quarter of C&D waste.

Such a division suggests that much can be done to divert jobsite demolition materials and scrap from landfills. To do it you need a plan: "Separation of materials, along with conscious efforts to reduce material quantities, are the two most critical elements of an effective [on-site] waste-management plan," explains Washington Harry Gordon, who heads the Waste Management Task Force of AIA's Committee on the Environment. Debbi Palermini, of Palermini & Associates, an environmental consulting firm specializing in resource-efficient building practices, maintains that the owner must be on board, asking the architect or other consultant to develop written requirements for waste managment that "set goals for waste reduction and require the prime contractor and subcontractors to develop their own plans to meet these objectives." Minneapolis architect Peter Vesterholt developed sample bid instructions for the AIA/Minnesota Committee on the Environment. The guidelines inform prospective contractors that the project requires a recycling plan, and provides a format for estimating costs.

Dump owner practices what it preaches
A surprisingly wide range of clients sees both economic and marketing benefits to recycling and other "green" strategies.

Metro, the public agency that directs solid-waste management for the three-county metropolitan area encompassing Portland, Oregon, recently moved into new headquarters where the agency could "practice what it preaches," as Jim Goddard, Metro's recycling program manager, explains.

Metro wanted the building design and construction process to be a model for what recycling could do. It targeted six goals for the project, designed by Thompson Vaivoda & Associates: emphasize salvage and reuse; maximize recycling and recovery; use recycled building materials; incorporate an efficient recycling system within offices; conserve energy; and reduce water use. (They've developed materials on planning for recycling. See page 23.) The agency's earliest and arguably most important decision was to recycle an abandoned Sears Department store. The program also called for the general contractor, Hoffman Construction, as well as all subcontractors to complete waste-management plans.

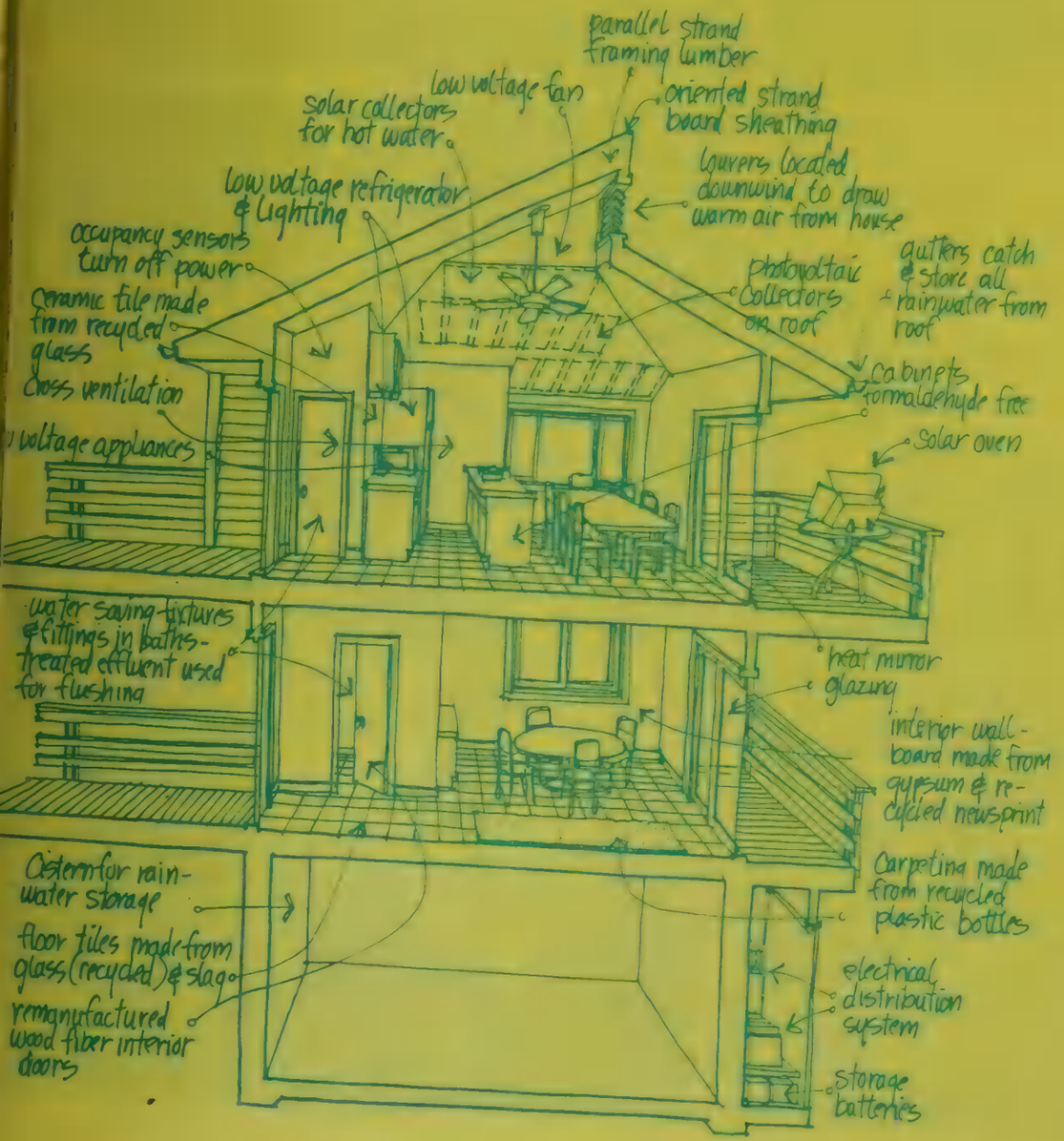
Before demolition work began, local non-profit foundations and salvage companies rescued 159 tons of materials, including 18,000 square feet of hardwood flooring (it was installed in the retail showroom of Rejuvenation, Inc., a local salvage company). The contractor diverted more than 77 percent of material from the landfill, recycling more than 725 tons of metal, wood, gypsum board, and corrugated cardboard. More than 7,000 tons of brick, concrete, sand, and dirt were processed into on-site and off-site fill. Some was used as a clean capping layer for a closed landfill. Only 265 tons of material were dumped, saving an estimated $35,000 in disposal costs. In the renovation, Thompson Vaivoda & Associates used products made from recycled materials whenever possible. Metro's new headquarters includes ceiling panels made partly from newspaper, paint from old latex paint collected at the agency's own household hazardous-waste facility, and wallboard incorporating recycled gypsum and paper. Restroom partitions and locker-room benches were fabricated of HDPE plastic (much of it from beverage containers), floor tiles from waste glass, foam insulation from remolded polystyrene, and resilient flooring from tires. To aid recycling by occupants in the completed building, the architects designed a three-chute paper-collection system within an abandoned mechanical shaft. They also placed collection areas on each floor for cans, glass, and cardboard.

Others in Portland are following suit. The recycling and waste-management plan for the Oregon Arena Project, a 20,340-seat arena designed by Ellerbe Becket, is one of the most comprehensive to be applied to a large project, according to Jerry Powell, chair of the National Recycling Coalition. (It began construction last summer.) Palermini Associates, the firm that wrote Metro's plan, was retained to develop a construction-site recycling and waste-management program for the arena. In addition to identifying materials to be recycled, the plan included specification language bound into bid packages for subcontractors. General contractor Drake/Turner will also educate subcontractors on the project. William Crockett, an architect with Ellerbe Becket, credits the clients for encouraging sustainable design and predicts that "it's only a matter of time before many of these environmental innovations will be standard procedures."

Recyling on a budget
For a new American headquarters for London-based The Body Shop, a successful retail chain of all-natural cosmetics, owners Anita and Gordon Roddick felt that recycling an existing building was much more appealing than building new. The Body Shop settled on a 114,000-square-foot structure on a rural 43-acre site, 15 miles north of Raleigh, North Carolina. "Our selection was based as much on the beautifully wooded grounds as the appropriateness of the existing building—a nasty, abandoned light-industrial ware-



The Body Shop Headquarters
Recycling at The Body Shop began with the building itself, a former warehouse. Much of it is still used for shipping and storage, but the architects opened the roof over office areas and added skylights. The existing joist system filters the light as do "mango leaf" armatures that encourage plant growth (drawing). Architect-designed light fixtures, display casework, and reception desks make use of recycled materials. Clearscapes is the architect.

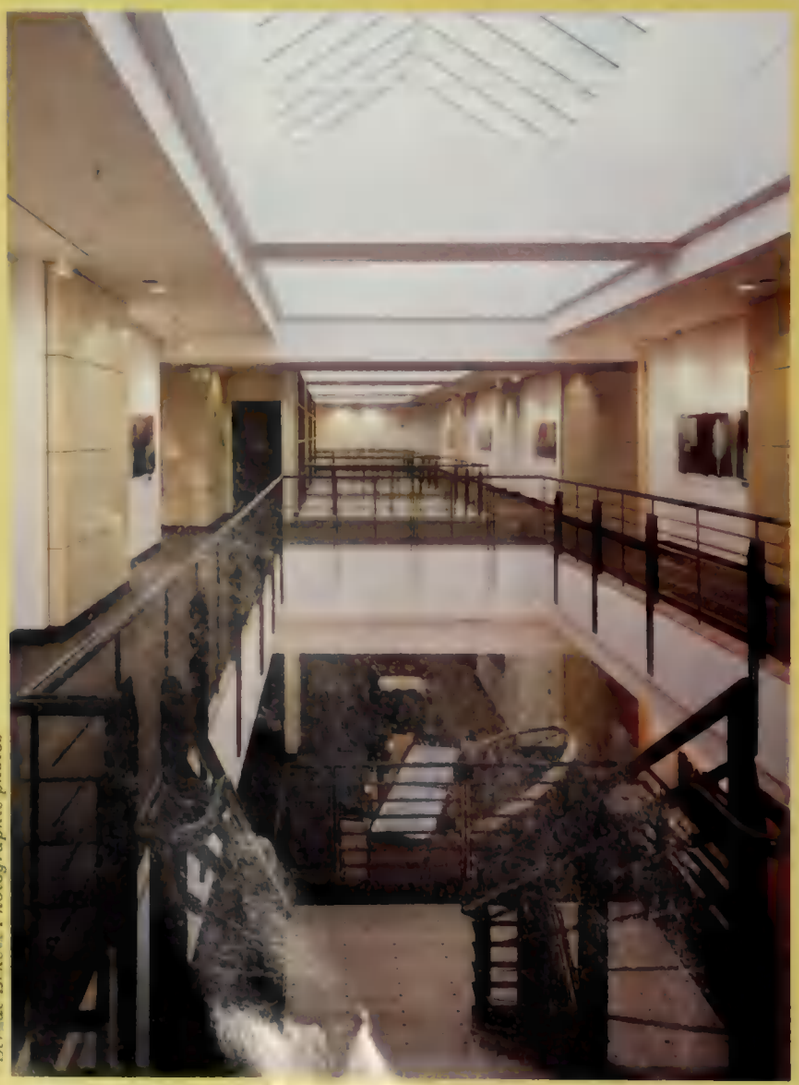


Harmony
This project takes eco-tourism to the luxury-resort market. It also represents the National Park Service's commitment to sustainable development (the resort is within the boundaries of the Virgin Islands National Park). Individual units not only contain significant recycled content (diagram), wastewater is recycled and organic waste composted. The architect sited each structure to minimize impact on native vegetation, and has further developed natural ventilation and active solar-energy strategies. The Park Service sees it as a prototype; researchers from the Sandia National Laboratory will study the performance of the resort's systems for possible further development elsewhere in the national park system. Guests participate by helping to monitor their own unit.

Metro Headquarters
Architects Thompson Vaivoda & Associates stripped an abandoned Sears store to its concrete frame for Portland, Oregon's solid-waste utility, adding considerable glass area in a stone, brick, and glass recladding (below). They created onsite parking, offices (new atrium bottom left) and a daycare center. A raised plaza (below right) signals the entrance. A conference room shares tower space with a tank fragment (bottom right).









© Strode Eckert Photographic photos

use," says Paul Alvey, The Body Shop's
e president of operations. Architect Gail
n Lindsey, founding principal of the Ra-
gh firm Design Harmony, served as
vironmental consultant. Clearscapes, a
leigh-based architecture firm, converted
is ugly duckling into an administrative and
anufacturing complex (page 21). Prior to
novation, the local chapter of Habitat for
umanity, a nonprofit housing organization,
lvaged doors, cabinets, demountable fans,
umbing fixtures, and light fixtures. Work-
g with a modest budget, the architects
ised the existing roof, installed light moni-
rs throughout the office space, and
odified an existing hvac system to be more
ergy-efficient. Carpeting is made from re-
cled plastic bottles, and floor tiles recycled
om light bulbs.

collaborative practice of architects and
ulptors, Clearscapes designed and fabri-
ted custom fixtures. The design team
ecified a plastic lumber that contains The
dy Shop's own recycled plastic bottles to
eate the receptionist desk, display cases,
d conference-room furniture. "The whole
ocess was an exciting endeavor for our
am," recalls project architect Carl
instead. "A corporation that places high
lues on human issues within its manage-
ent philosophy while campaigning for
obal and environmental concerns is still a
nique client."

cycling for travel

rowing awareness of environmental issues
s given rise to eco-tourism, which in turn
s challenged architects to create sustain-
le development on fragile landscapes.
venteen years ago client Stanley Selengut,
rking with New York architect Jim Had-
y, built a collection of "tent-cottages"
ng Maho Bay on St. John in the Carib-
an. "When I first opened for business, the
vironmental movement was just begin-
ng and the term eco-tourism did not exist,"
plains Selengut. "My original intent was
mply to offer an inexpensive vacation that
as close to nature but provided a degree of
mfort." In October, Selengut's and Had-
y's latest collaboration opened. It is an
ght-unit luxury-resort prototype called
armony set next to their earlier efforts
age 21). Harmony is made largely of recy-
cled materials, and all energy is generated by sun and wind using solar panels, a windmill, and storage cells.

Recycling on cable

Gensler and Associates didn't wait for an enlightened client before tackling environmental issues. In the spring of 1991, the firm created its own Design Ecology Committee in the Los Angeles office. Several months later, the group targeted the 53,000-sq-ft renovation for Home Box Office as the pilot project. "It was a perfect fit," recalls architect John Carter. "When we met to discuss the subject of sustainability, the client informed us of HBO's corporate policy: 'to create a healthy working environment for staff, to minimize the project's impact on the environment, and to recycle and use recycled materials as much as possible.' " During demolition and construction, recycling bins for metals, wood, gypsum board, and copper wiring were placed on each floor. The new walls were built using steel studs made from recycled steel and recycled-content gypsum board.

The food isn't recycled—right?

Other companies have found that recycling sells. Following a widely publicized conversion to food packaging with recycled content, McDonald's Corporation began using recycled materials in the construction of its restaurants. An outlet in Kent, Washington, features a copper roof made of recycled radiators and wires, a menu board from 15 percent recycled plastic, and seating and tabletops made from recycled steel, aluminum, and plastics. The company sponsors the McRecycle Registry Service, a listing of more than 500 producers and suppliers of recycled products. And Wal-Mart, another retail giant not known for its architectural sensitivity, opened its first "Eco-Mart" earlier this year in Lawrence, Kansas. The store features renewable construction materials, energy-efficient lighting, and a recycling center. Many of these clients have high public profiles and want to be seen as "being part of the solution." The combination of economics, regulation, and public acceptance may turn even skeptical clients into converts—if the architect is informed and prepared to make recycling work to the client's advantage. ■

Resources

- *AIA Environmental Resource Guide*, 1735 New York Avenue, N. W. Washington, D. C. 20006. 800/365-ARCH.
- *A Resource Guide to Recycled Construction Products and Energy Efficiency*, California Integrated Waste Management Board, 8800 Cal Center Drive, Sacramento, Calif. 95826 916/255-2385 or -2411; Recycling Hot Line: 800/553-2962.
- *Guide to Resource Efficient Building Elements*, Center for Resourceful Building Technology, P. O. Box 3866, Missoula, Mont. 59806. 406/549-7678.
- *Construction Site Recycling* and *Recycled Product Guide*, Metro Portland, 600 Northeast Grand Avenue, Portland, Ore. 97232. 503/797-1700
- *Construction Materials Recycling Guidebook*, Minnesota Office of Waste Management. 800/657-3843.
- *Construction Site Recycling: A Handbook on Recycling Building Materials for Home Builders, Developers, and Contractors*, National Association of Home Builders, 1201 15th Street N. W., Washington, D. C. 20005. 800/368-5242
- *The Sourcebook for Sustainable Design*, Andrew St. John, editor, Boston Society of Architects, 52 Broad Street, Boston, Mass. 02109. 617/951-1433.
- *SEED Newsletter* and *The Green Pages*, New York Chapter, Institute of Business Designers' Council on the Environment, 27 East 59th Street, New York, N. Y. 10022.
- *Interior Concerns Resource Guide*, Publications for Environmentally Concerned Designers, Architects, and Builders, P. O. Box 2386, Mill Valley, Calif. 94942. 415/389-8049
- *Environmental Building News*, Route 1 Box 161, Brattleboro, Vt. 05301. 802/257-7300.
- *Guiding Principles of Sustainable Design*, National Park Service, U. S. Department of Interior, Washington, D. C.
- National Solid Wastes Management Association, 1730 Rhode Island Avenue, N. W., Washington, D. C. 20036. 202/659-4613.
- Pacific Materials Exchange, 1522 North Washington Street, Suite 202, Spokane, Wash. 99201. 509/325-0551.

ArchiCAD 4.1 for Windows

By Steven S. Ross

The new Windows version of this 3-D modeling and drafting package looks remarkably similar to the acclaimed Macintosh version. You can open multiple windows, work in plan or in 3-D, import textures and background images.

The files must be translated from one machine to the other, however, because the Mac version takes advantage of some technical features Windows does not offer and because numeric values are stored differently. But the translation is perfect in either direction because drawing entities are stored the same way.

As with the Macintosh version, the key to ArchiCAD is that it can do just about everything. (See RECORD, January 1993, page 43, for a review of the Macintosh version and discussion of features new in 4.1.)

- While hardly the best package for production drafting, its drafting engine is adequate, especially on high-end computers.
- Its modeling tools are among the best; they include built-in "object libraries" you can modify and pull into your drawing.
- Its presentation tools are also quite good. You can show shadows for any place on Earth at any time of day, for instance. Medium-quality rendering is standard. And you can set up fly-throughs with little effort.
- Its internal database for calculating bills-of-materials is full-featured.
- Utilities for printing, plotting, and file import and export are first-rate, too.

From a training point of view, ArchiCAD is well-behaved. It allows users to do routine things easily, and to learn hard things as they need to be learned. Objects in 3-D, for instance, come together like precast concrete walls and floor slabs. Extremely complex roofs can be modeled, too, but they are far trickier.

All this comes at a price. The package is huge—about 25MB on disk. It will run in 4MB of random-access memory—badly. Indeed, performance on moderate-size drawings degrades below about 8MB. Fortunately, machines and memory are cheap these days.

ArchiCAD is ideal for smaller offices where design, drafting, and client presentation functions are intimately intertwined. But it can also be used in larger firms, especially for work where modeling is vital. So much the better if the heavy-duty production drafting is handled by more specialized CAD software such as AutoCAD or MicroStation, with files translated back and forth between them and ArchiCAD. *Write number* **700**

ArchiCAD 4.1 for Windows Summary

Equipment required: DOS computer capable of running Windows 3.1; super-VGA a 16MB of RAM recommended. Works with wide variety of output devices, digitizers, and so forth. Graphisoft says 8MB of random-access memory is enough to run the package, but we had trouble; with disk-caching program and virtual-memory swap file place, this leaves about 15MB for ArchiCA itself. Consider 16MB of RAM a minimum.
Vendor: Graphisoft USA, 400 Oyster Poin Blvd., Suite 429, South San Francisco, Cal 94080, phone 415/737-8665; 800/344-3468; f 415/871-5481.
Manuals: First-rate reference manuals fo commands, the object library, and GDL macro programming. There's no dedicated tutorial, however.
Ease-of-use: Lots of features, lots of com mands. But common actions are easy to d Slow response when 3-D renderings are or screen.
Error-trapping: Essentially as good as W dows 3.1. Networking Macs and DOS computers is complicated by the wide vari ety of files thrown off by ArchiCAD and b the slight differences in file structure between ArchiCAD on the two platforms. ■



Wireframe and rendered image on screen. You can plan a fly-through from these views.



Drawing palettes in place for 2-D plan view; note the rendered and wireframe views on-screen as well.

AutoVision

ink of it as 3-D Studio Lite—less filling, d with a twist on usability: Unlike 3-D Stu-, AutoVision works inside AutoCAD 12 r DOS, not Windows). That makes it easier use. The price is also quite a bit less—$795 r AutoVision, versus $2,995 for 3-D Studio.

utoVision can also handle complex, even otorealistic, rendering on a DOS PC. And files are reasonably compatible with 3-D udio's new Release 3. But AutoVision can-t handle the animations—walkthroughs, r instance—that 3-D Studio can (it reads d writes .3DS files, but not .3DS animation ta). AutoVision, like 3-D Studio, reads Vi-al Link and AVE Render files.

so, the so-called "procedural" materials u can create in either package are not mpatible. That is, the procedural files for tterned surfaces like woods and marbles nnot be read by AutoVision if they are cre-ed in 3-D Studio, and vice-versa. Procedural" files use a mathematical de-ription to describe the surface. If you stick the "material" files in both packages, wever, you will not have any trouble. Ma-rial files are essentially pictures of the aterial you want to use.

nd AutoVision lacks the 3-D modeler in 3-D udio; you let AutoCAD itself handle the awing tasks. (Because 3-D Studio stands one, outside AutoCAD, it needs more built-drawing tools.)

you use AutoVision to render a standard WG file, AutoCAD saves the rendering in-rmation with the file.

s with some integrated packages that com-ne rendering, modeling, and drafting, utoVision allows you to place and adjust hts for shadowing and shading, determine n position based on time of day, date, and cation on Earth. You can edit materials for plication to surfaces—controlling color, flectivity, transparency, and texture.

e found AutoVision to work generally ster than most of the rendering packages e've tested; your speed and its advantage this regard—if any—will depend on your awing style, number of light sources in ay, number of surfaces, curves, and so forth. Our reviewers generally used it for basic shading first, then jumped to full-detail rendering or (at a speed penalty) ray tracing.



Model in AutoCAD 12 using AutoVision.

AutoVision works in 8MB of random-access memory, but 16MB easily quadruples speed on large files. An inexpensive 8-bit (256-color) graphics card gives you good on-screen representation.

If you already have 3-D Studio, AutoVision will not add any functionality. But it could add working speed—it is handy to work inside AutoCAD itself, especially for tough-to-model, tough-to-explain sections of larger drawings. If you need animation at that point, you can move the files to 3-D Studio. *Write number* **701**

AutoVision Summary

Equipment required: Any DOS computer with 80386 or higher CPU, capable of running AutoCAD Release 12 with AVE Render. We strongly recommend a CD-ROM player (AutoVision comes with a CD-ROM full of texture files).
Vendor: Autodesk, Inc., 2320 Marinship Way, Sausalito, Calif. 94965, fax 415/491-8200, 800/879-4233. $795; upgrade to AutoCAD Release 12 and AutoVision is $1,000.
Manuals: One well-written 200-page paperback with good tutorial and good reference material.
Ease-of-use: Once installed, it becomes part of AutoCAD.
Error-trapping: As good as AutoCAD itself. You don't get a good warning before creating an image that does not translate easily into 3-D Studio, Release 3. ■

3-D Studio Release 3

New! Improved! Faster! Takes AutoCAD files and renders, moves, slices, dices . . .if the files were drawn correctly in the first place.

Autodesk is trumpeting the ability of 3-D Studio to use plug-in IPAS "effects" modules (exploding and disintegrating images for example). Architects would rarely need such sophistication. But there's another reason to upgrade from Release 2—better compatibility with AutoVision (reviewed at left) and faster rendering speed with more network flexibility.

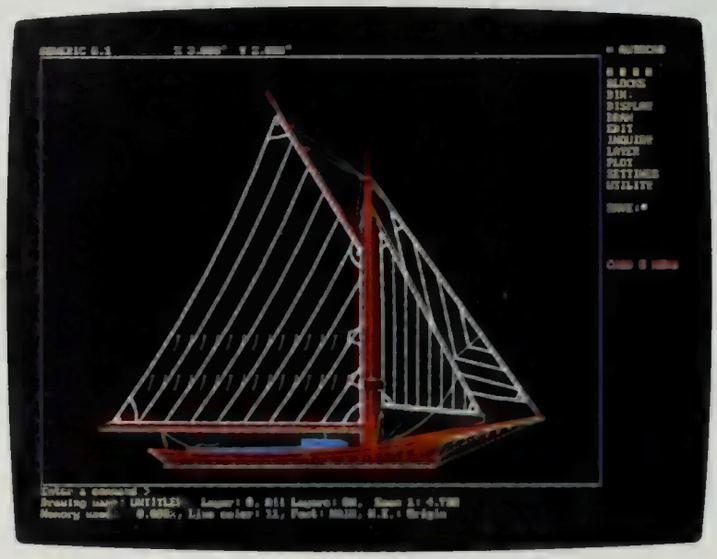
Those who do contrasty, edgy work will appreciate the better anti-aliasing (it reduces "jaggies" on screen) in Release 3. The materials editor is easier to use and a bit more flexible, color corrections for transfer of animations to videotape are easier, and you can render only a small section of an image if you'd like.

It will run under Windows NT (even on a network) and Windows but it is a DOS application. *Write number* **702**

3-D Studio Release 3 Summary

Equipment required: Any DOS computer with 80386 or higher CPU, 8MB of RAM (16 MB strongly recommended). We strongly recommend a CD-ROM player (3-D Studio comes with a CD-ROM full of texture files, 100 fonts, 500 models, and sample stills and animations).
Vendor: Autodesk, Inc., 2320 Marinship Way, Sausalito, Calif. 94965, fax 415/491-8200, 800/879-4233. $2,995; bundle with AutoCAD Release 12 (regularly $3,750) is $4,995. Upgrades are $497; free upgrade if you purchased Release 2 after August 1, 1993.
Manuals: Huge tutorial manual. Huge reference guide. Summary guide for advanced users.
Ease-of-use: The biggest barrier is the need to understand animations; a film course would help more than one on CAD drafting.
Error-trapping: Good; you can generally abort a time-consuming process if you know you've made a mistake. ■

Why the makers of AutoCAD strongly recommend another brand of software.



New Generic CADD 6.1



AutoCAD Release 12

Introducing Generic CADD 6.1.

The makers of AutoCAD® software recognize that not everyone needs AutoCAD's full-throttled power. That's why we recommend new Generic CADD® 6.1.

This latest version of Generic CADD software can now write AutoCAD.DWG files—the standard file format throughout the CAD world.



This upward compatibility from Generic CADD to AutoCAD lets you extend the power of CAD to anyone in your organization — even those not directly involved in the design process.

Of course, this latest version of Generic CADD delivers the extraordinary functionality and ease-of-use that have made it a three-time winner of the coveted *PC Magazine* Editors' Choice Award. And it's still only $495.

Generic CADD 6.1 is part of the Autodesk® family of design automation products. You'll find it at leading retail software centers. Or call us at 1-800-228-3601 and request Infopack #A102.

Autodesk.

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In This Issue

Recycling waste into building products will become one of this decade's critical industries. For what's in store, see page 18 of this month's feature "Ready or Not, Construction Recycling Is on the Way." More and more, architects are dealing creatively with the problem. Near the Raleigh, North Carolina-based American headquarters of The Body Shop, the British natural-cosmetics giant, Clearscapes, the architects, did a lot right: they reused an old tilt-up warehouse, but raised part of the roof to admit clerestory daylight to the interior; they specified a handsome floor tile made out of old light bulbs; a good carpet was produced from recycled soft-drink bottles; display stands came from reconstituted wood; interior conference rooms were faced with glazed garage doors. The result was attractive, and cost under $100 per square foot.

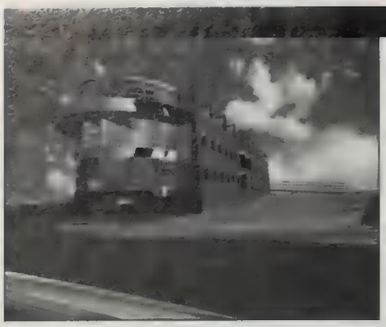
There's work to be done. Clients and architects still tend to use recycled materials for ideological reasons rather than, as Minneapolis architect Peter Vesterholt says, as routine responses to "practical matters of supply and demand."

Meanwhile, back at the plant, U. S. and overseas building-product manufacturers steadily continue to put on the market products that are increasingly energy-efficient, flexible, ADA-compliant, and free of toxic substances. Computer products are becoming networkable, portable, and cheaper. The following 50-plus pages in this year's RECORD Product Reports give you an overview of this rich array of choices, arranged as usual in the 16 CSI/Sweet's categories. More and more product information is available in electronic form: such items are marked with an asterisk.

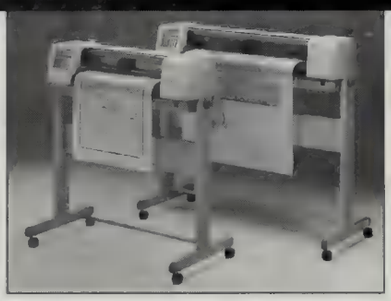
RECORD is always on the lookout for new materials, products and their applications. We encourage you, the reader, to tell us about them. Associate editor Joan Blatterman, who assembled and edited the material, is eager to hear from you. *S. A. K.*

Manufacturers' Index listed on pages 6-8

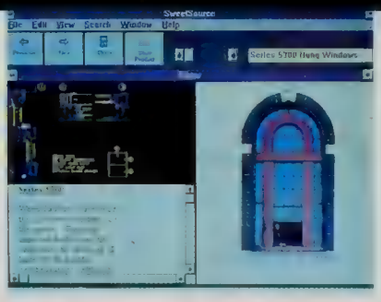
For more information, write item numbers on Reader Service Cards.



1. Discipline Integration
Known as CadPLUS-3D, package integrates manufacturer's architectural, structural, mechanical, electrical, and civil modules. Also featured are the assembly and management of details through a special detail library. Details may be customized, and new ones added. Research Engineers, Orange, Calif.*



2. Vector plotters
Three new XP-500 Series vector plotters feature speeds up to 50 inches per second. New automatic pencil-lead feeder can hold a wide array of leads to produce visually attractive CAD output with minimal user intervention. Unit is able to mix ink and lead within the same drawing. Mutoh America, Inc., Mt. Prospect, Ill.



3. Product data on CD
SweetSource, an interactive CD-ROM-based product with fast access to building product information, has published its third edition. It now contains over 12,000 items produced by over 500 manufacturers. Form and content are monitored by a 600-person Advisory Council of user professionals. Sweet's Electronic Publishing, Grand Rapids, Mich.*



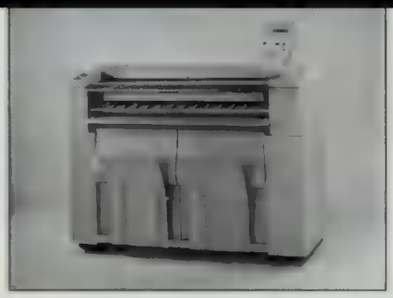
4. Economical inkjet plotter
HP DesignJet 200 plotter comes i D- and E-sized models, and is said plot up to five times faster than pe plotters. The unit is aimed at arch tectural and other professional designers who need a relatively lo plot volume of up to eight sheets p day. D-size: $3,695. Hewlett Packa Palo Alto, Calif.



5. Two personal CAD plotters
ProTracer II and ProTracer II-GL produce both large drawings and standard text documents. Each yields letter-quality C-size drawings at 360 dpi resolution. ProTracer II is designed specifically for use with AutoCAD. Pacific Data Products, San Diego.



6. Measuring distance
Distance, area, and volume-measuring tools using a sonic device help design and construction professionals obtain rapid, accurate field measurements. Little training is required. Units also serve architects working on interiors by replacing tape rules for establishing distances between walls and between furniture items. Sonin, Inc., Scarsdale, N. Y.



7. Copier for mid-range volume
Xerox 3050 plain-paper is designed for architects, engineers, and others with copy volume in the range of 2,500 copies a month. Unit makes multiple, size-for-size copies up to 36 in. wide. Xerox Engineering Systems, Rochester, N.Y.



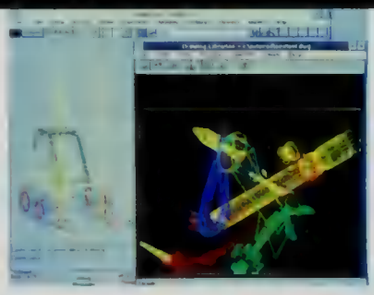
8. CAD software for Windows
Manufacturer has released six of i AEC applications for porting to Microsoft's Windows NT operatin system. They include DesignWork for architectural and drawing proc tion, SiteWorks for digital terrain modeling, and FrameWorks for st tural design. Intergraph Corp., Huntsville, Ala.*



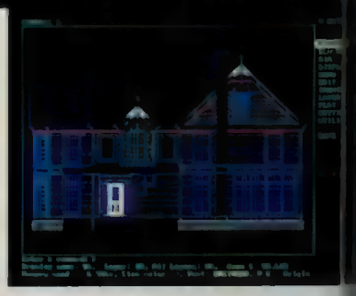
9. Software offers walkthroughs
MiniCad 4.0 is a 2-D/3-D program with a built-in database and spreadsheet. It offers walkthrough capability and a real-time message bar. A built-in DXF translator connects the user to AutoCAD. Also new is ClarisCAD translator supplies file translation from MiniCAD, Cadd Graphsoft, Inc., Columbia, Md.*



10. Precision pointing device
Peripheral product called Space Control Mouse is a six-degrees-of-freedom pointing device with high precision movements and an ergonomic shape. Item is compatible with Sun, HP, PC, and Silicon Graphics workstations, according to manufacturer. Logitech, Inc., Fremont, Calif.



11. AutoCAD linked to Windows
Software known as DL Windows(for Drawing Librarian) provides Microsoft Windows users with access to AutoCAD drawings by allowing viewing and printing of AutoCAD and DXF files. Also integrates DWG files with Access, FoxPRO and other Windows applications. SoftSource, Inc., Bellingham, Wash.,*



12. Generic CADD AutoCAD Li
Generic CADD Release 6.1 allows you to write files in AutoCAD's D format. Other features include upgraded compatibility with AutoCAD, a new AutoCAD-style menu option and on-line comman cross-reference, thereby simplify the process of exchanging 2-D file electronically. Autodesk, Inc., Bot Wash.

** Product Data on CAD*

For more information, write item numbers on Reader Service Cards.



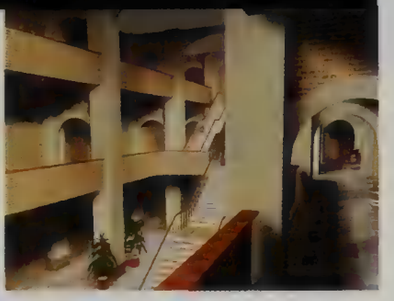
3. Plain-paper digital copier
00 series copiers and plotters are d to manage the reprographic/ AD process from design to distribu- bridging the gap between analog d digital technology. The plain- per E-size copier pictured features tomatic data recognition and plot sting. Oce-USA, Inc., Chicago.



14. Rendering in AutoCAD
Developed with RenderStar Technology, the Advanced Rendering Extension works inside of AutoCAD R12, and integrates with most applications software. It can visualize any 3-D AutoCAD model and generate sun-shadow studies. All commands can be accessed from one standard AutoCAD pulldown menu. KETIV Software, Portland, Ore.



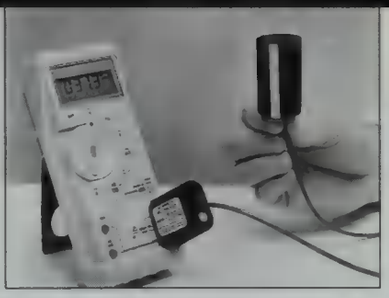
15. Thermal labeler
A hand-held, 1-in. label printer stores text and files for later retrieval; additional intelligence comes with optional application cards. The thermal-transfer unit works with laminated, non-laminated, and die-cut paper. A two-line, 16-character display permits proofing before printing. Kroy, Inc., Scottsdale, Ariz.



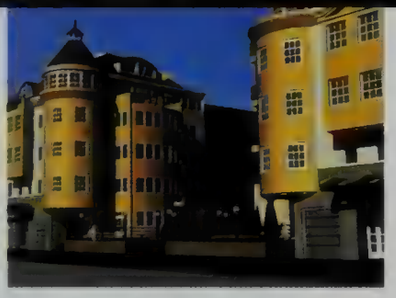
16. Building-design CAD
New architectural-application modules are said to take full advantage of AutoCAD Release 12 functionality, including cascading menus and dialog boxes. Enhancements to Auto-Architect permit complex roof- and wall-design tasks, improved ceiling-grid commands, and a new stair calculator. Softdesk, Inc., Henniker, N. H.*



7. Photorealistic rendering
toVision 1.0 provides photo- alistic still rendering for users of toCAD Release 12 for DOS, ning a 3-D wireframe into a photo- ality image without leaving toCAD. Suggested retail at its '93 release: \$795; AutoCAD owners n upgrade to R12, with AutoVision: .000. 800/879-4233. Autodesk, Inc., usalito, Calif.



18. Magnetic-field evaluator
Described as low cost, the EP-102 probe measures alternating current magnetic fields from power lines, transformers, computers, and appliances, and evaluates attenuation effects of shielding installations. Can be used to gauge interference-field intensity prior to specifying architectural EMI shielding. Magnetic Shield Corp., Bensenville, Ill.



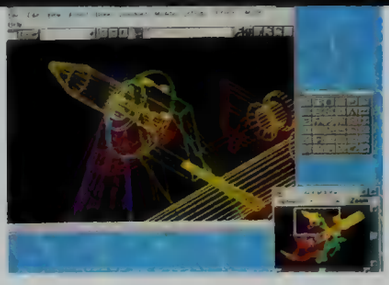
19. CAD for Windows
The ArchiCAD 3.1 modeling and CAD package is now available in a Microsoft Windows version. It can read and write. DWG-format files, generate elevations, 3-D sections, renderings, animations, and includes a parametric object library. Graphisoft U. S., South San Francisco, Calif.*



20. Double-pedestal workstation
A front surface as large as 24- by 48-in. needs only a 25- by 35-in. footprint; independently supported front and back sections each offer tilt and height adjustment. The VariTask CAD desk comes freestanding rectangular, as shown, and larger, corner-configuration units. Mayline Co., Inc., Sheboygan, Wis.



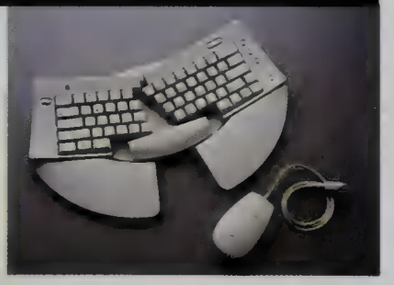
. E-size multicolor pen plotter
e Classic plotter is said to supply arp inking and precisely defined awings; new MaxPlot pens permit ernight plotting without running t of ink. Unit can use liquid ink, aid-ball, and fiber-tip pens on bond, y film, translucent, or vellum sheet d roll media. CalComp, Anaheim, lif.



22. AutoCAD for Windows
Stand-alone version of AutoCAD R12 for Microsoft Windows 3.1 includes a built-in display-list driver that speeds up pans and zooms, and almost eliminates the overhead that is typically associated with Windows-based CAD applications. A bird's-eye-view option (shown) allows quick selection of the desired drawing area before zoom. Autodesk, Sausalito, Calif.



23. Digital plan measure
The Scale Master Plus offers 49 built-in scales, including 12 architectural and 12 metric, and converts instantly between metric and others at the touch of a button. It can determine scales from faxed, enlarged, or reduced drawings; rolls on distances positively in either direction. List: \$99.95. 800/854-8075. Calculated Industries, Inc., Yorba Linda, Calif.

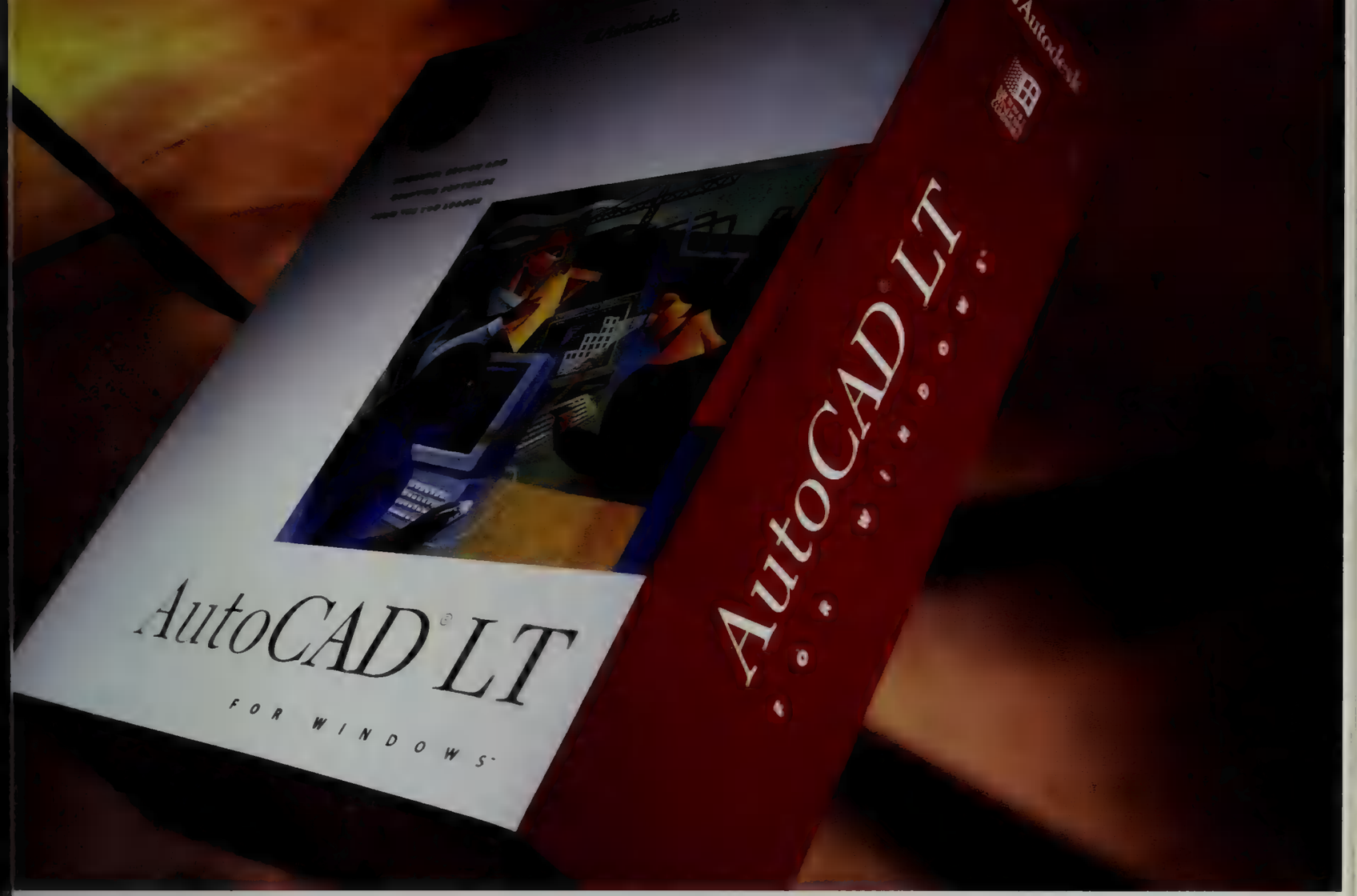


24. Ergonomic input devices
Apple's adjustable keyboard is divided into two hinged sections that can be angled to help users keep their wrists in a comfortable, neutral position, and customize components to meet individual work habits. A new mouse has an elongated shape that supports the palm; any finger can click. Apple Computer, Inc., Cupertino, Calif.*

roduct Data on CAD disk

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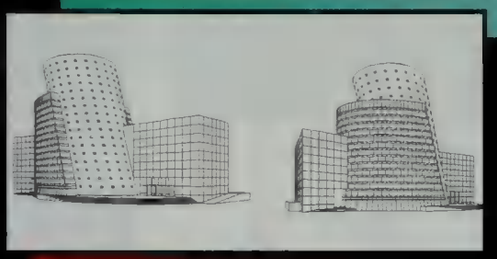
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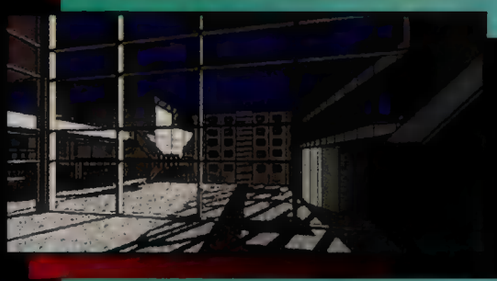
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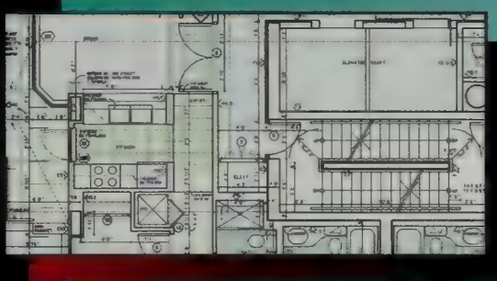
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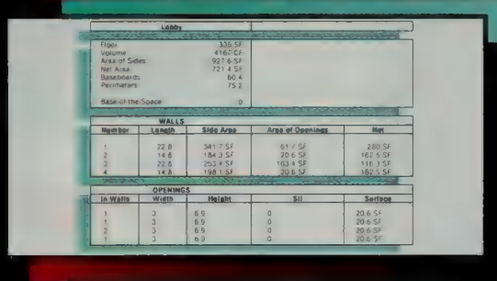
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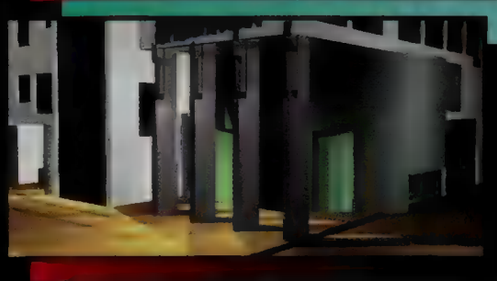
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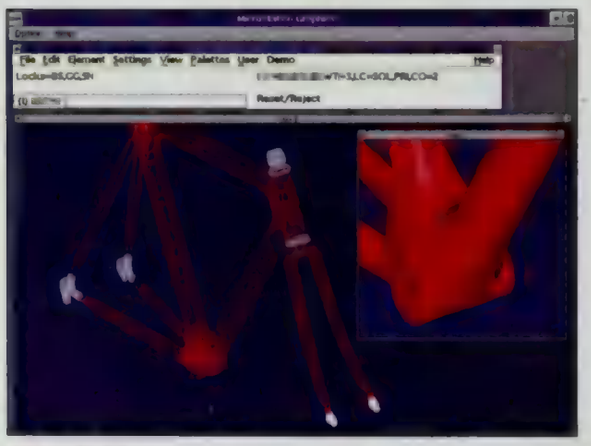


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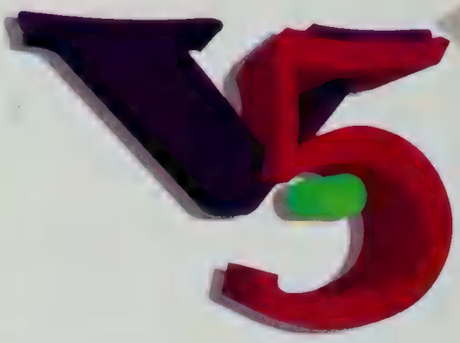


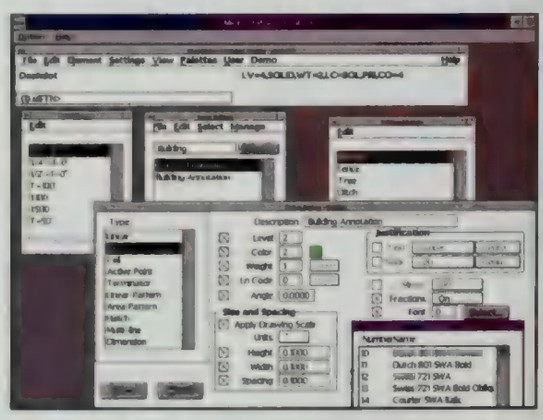
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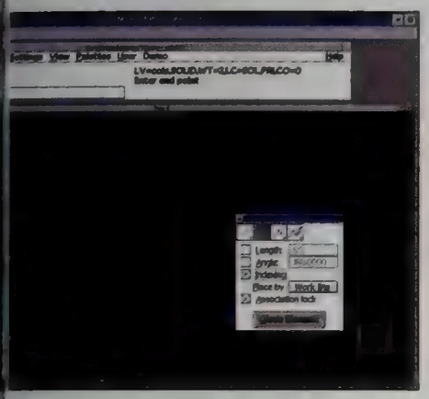


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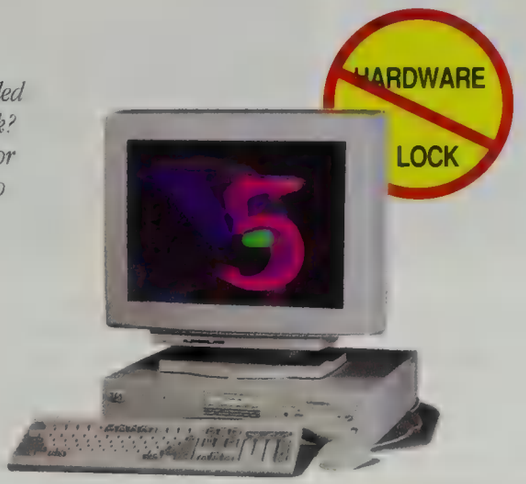
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Usability. *What does computer-aided drafting have to do with the way you think? Everything. MicroStation software works for you. It understands the drafting process so well that it infers what you'll do next.*



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Graphical User Interface. MicroStation's easy-to-use interface includes pull-down menus, dialog boxes, tear-off tool palettes, and tool settings window. Choose your interface – Windows or Motif – on any platform. *Transparent Modeless Operation.* The software supports the way you naturally work, maintaining command execution while you fine tune: change element attributes or command parameters, manipulate views, change the dimensioning system, and more. *Powerful View Manipulation.* MicroStation supports up to eight views that can be moved, sized, and overlapped to fit your design. Zoom and area at any scale. Move around your design fast with built-in dynamic panning. *Workspace Editor.* Tailor pull-down menus, dialog boxes, and tool palettes – customizable commands – with a graphically oriented toolset for customizing your chosen interface. *Text Capabilities.* A convenient text editor lets you easily edit single- or paragraph text. Choose from TrueType, PostScript, AutoCAD SHX, and MicroStation fonts. ASCII text files can be imported and exported. *Multiple Undo/Redo Commands.* Undo mistakes and perform "what-if" designs in a flash with unlimited undo and redo. *Plotting.* Plot raster and vector information by view or defined areas, at any scale. Visually preview the plot before plotting, saving time and materials. *Online HELP.* MicroStation's HELP remains active, tracking the command you're currently using, so there's no searching through manuals for assistance. *Associative Patterning and Hatching.* Associate patterning with graphics. Change graphics and the patterning updates. Flood-fill hatching/patterning intelligently fills an area, detecting boundaries and holes with a single pick. *Associative Dimensioning.* Dimensions are associated with the geometry, not with a point in space, so that when you change the geometry, the dimensions automatically update. *Custom Line Styles.* Create saving custom line styles and place railroad tracks, trees, isobars – anything – just as you would place a line. *Complex Lines.* Define line string elements comprising up to 16 parallel lines of varying symbology and store them in a style library for use. Designers can use multi-lines for fast and easy placement and intersection cleanup of walls and partitions. *2D Boolean* Quickly modify, measure, and hatch multiple 2D shapes with integrated Boolean operations. *Mass Properties.* Calculate area and solid model: surface area, volume, mass, centroid, moments and products of inertia, principal moments and directions, and radii of gyration. Define relationships among graphic entities with intuitive drawing modes such as tangent, parallel, perpendicular, midpoint, intersection, and end-point. *Dimension-driven Symbols.* Based on established relationships, you can assign variables to dimensioned graphics and save the graphics as cells for placement. Changes in dimensions automatically drive changes to graphics. Dimension-driven design saves valuable time in the design of families of

MicroStation Version 5 puts you in charge.

Call 800-345-4856 for a free brochure on MicroStation Version 5 and the name of an Intergraph representative in your area.

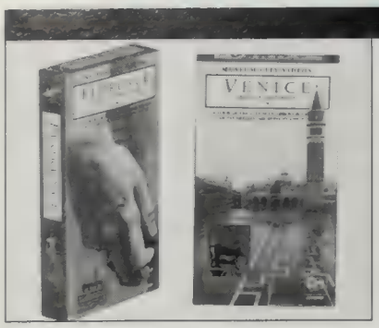
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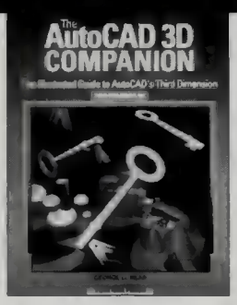
For more information, write item numbers on Reader Service Cards.



25. London stars in video
Latest in a series of city videos explores London's 2,000 years of cultural landmarks. The 48-minute narrated tape looks at cities (the series also includes Venice and Florence) as living museums, with each building, statue, and painting serving as a piece in the overall "collection." $19.98. 800/843-9843 V.I.E.W., Inc., New York City.



26. Drafting tools catalog
Drafting, plotter, CAD, and graphic supplies are listed in this 84-page catalog. Latest edition features an expanded section of plotter supplies, and includes furniture and calculators. Manufacturer's discounts of up to 70 percent are offered.
Dataprint Corp., San Mateo, Calif.



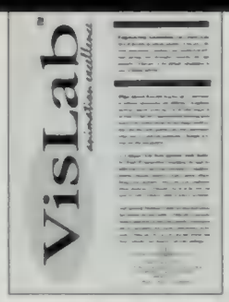
27. Two guides to AutoCAD
Two new guides show AutoCAD (Release 12) users how to become more productive. Outside AutoCAD is a non-programmer's guide to managing the software's database and covers new features found in Release 12. The AutoCAD 3-D Companion is an illustrated guide to the software's 3-D interface. Ventana Press, Chapel Hill, N. C.



28. Tool for officeplanning
Planix for Windows software allows you to obtain a drawing of your spa simply by typing in key dimensions. Image libraries provide symbols fo people, partitions, and freestanding furniture. Runs on 386 chip or faste Microsoft Windows 3.1 or later, and needs 2MB of RAM. Foresight Resources Corp., Kansas City, Mo.*



29. Design, construction software
Architecture & Engineering Series is integrated software linking design and construction phases of a project, as well as post-occupancy maintenance and management. Allows for transfer of files from systems using DXF, IGES, TIFF, and Posteript. Image Processor for scanning drawings and photographs optional. IBM Corp., Milford, Conn.*



30. Realistic animation program
VisLab software is a 3-D animation program that offers users realistic motion at top rendering speeds, according to the manufacturer. Applications include architectural, mechanical engineering, and graphics design. Other modules, available separately, provide animation of rain, fire, and smoke. Engineering Animation, Inc., Santa Cruz, Calif.*



31. True-color slide viewers
Manufacturer's Kaiser "Prolite 5000" series of slide viewers is said to provide true color rendition. Viewers come in four sizes, and each size has specially designed fluorescent tubes that radiate all colors of the spectrum in the same proportions as average daylight. Kaiser Fototechnik, Pine Brook, N. J.



32. Software does ADA survey
Known as ADA Survey, software allows designer to perform graphic survey of a building project for com pliance with architectural barrier requirements. Software records loc tion of existing barriers on floor pla and elevations and produces a docu ment locating problem spots. ADA Survey, Springfield, Mass.*



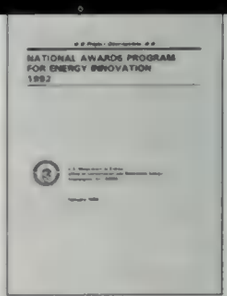
33. Graphic supplies catalog
Dataflo... cutting devices, ... drawing ... technical pens, ... and ... patterns, and ... such as ... the 48-page ... graphs, ... products from ... Direct, Inc., ...



34. CAD-produced architecture
Four-color catalog from producer of UNIX-based Microstation offers architect and client profiles and case studies of commercial and institutional buildings. Examples explain how system was applied in various ways such as 3-D modeling, scanning photographs, and exploring form and ... Intergraph Corp., Huntsville, Ala.



35. MacDraft 3.0 adds features
New features of version 3.0 of manufacturer's low-cost MacDraft software, designed to operate on the Apple Macintosh platform, include ability to draw lines at right angles to an edge, lines tangent from an arc to a point, and regular polygons and marker symbols. Innovative Data Design, Inc., Concord, Calif.*



36. Energy-design award winn
Free 124-page paperback contains winners of 1992 National Awards Program for Energy Innovation sponsored by the U. S. Departmen Energy. Organized in five energy-t categories: industrial, building and transportation technology, energy technology, and education. Nation Appropriate Technology Assistanc Service, Butte, Mont.

* *Product Data on CAD*

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Metal furnishings
gned by John Caldwell, the Town untry Collection of furnishings Garden Source Furnishings des tables, chairs, and settees. e from cast aluminum and ght iron, these items are appro- e for use in restaurants and s, both indoors and outdoors. sh-by-Nature, Beverly Hills,



38. Tree grate
The ADA tree grate was designed to comply with the federal Americans with Disabilities Act without costing more than standard grates. The ADA grate has narrower slots which are perpendicular to the direction of travel and is also available for heavy-duty vehicular traffic. Ironsmith, Palm Desert, Calif.



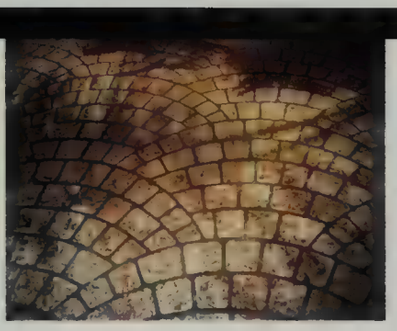
39. Retaining-wall unit
The Brute segmental retaining-wall unit is a modular concrete system that features large units and simple mechanical installation. The system allows 1- or 3-in. vertical setbacks in course walls. No mortar or concrete foundations are required and there are no cores to fill. Versa-Lok Retaining Wall Systems, division of Kiltie Corp., North St. Paul, Minn.*



40. Cast-stone planters
Dura Art Stone's expanded line of commercial and residential planters now includes 23 basic designs and a reformulated Glascrete material that contains more natural aggregates. Glascrete combines polyester resin, fine aggregates, and glass fibers to create a material that weighs just 20 percent of regular cast stone. Dura Art Stone, Fontana, Calif.



Colored asphalt-seal coating
seal coating brings color to alt. Added to conventional alt-seal coating or slurry-seal ucts, Asphacolor coating comes ree earthtone colors of red, n, and brown. The product is said ve the same durability as black nts and can be used in both resi- al and commercial applications. acolor Corp., Sparks, Nev.



42. Stenciled concrete
Textured to create paved surfaces that simulate natural materials such as brick, slate, and granite, Bomanite Stenciled Concrete is appropriate for both residential and commercial applications. One-piece slab construction and integral-grout joints enhance durability. Available in 25 colors and nine patterns. Bomanite Corp., Madera, Calif.



43. Playground surfacing
EZ Fall 7 is a new playground surface that is compression-molded into 4-ft-by-4-ft tiles from 100 percent top-grade rubber. The material meets Consumer Product Safety Commission guidelines at seven-foot drop heights and complies with ADA requirements for handicapped accessibility. Mitchell Rubber Products, City of Industry, Calif.



44. Wooden bench
The Serpentine Seat is an undulating bench with wooden slats made from either oak or elm and bases made from natural stone, reconstituted stone, or steel. Minimum surface area discourages graffiti, while the undulating shape discourages people from sleeping on it. The bench is 92 in. long and 18 in. high. Factory Furniture, Swindon, England.



Wrought-iron bench
wrought-iron, three-seat Gothic h is handcrafted of heavy-gauge -grade steel to endure maximum e. The bench is 60-in. long, 17-in. , and 37-in. high. It weighs 105 nd is powder-coated for rust pro- on. Available in white, black, and green. McKinnon and Harris, Richmond, Va.



46. Custom settee
This custom-designed and manufactured settee was specified by Hardy Holzman Pfeiffer Associates for the Los Angeles Public Library. Made from mahogany with full mortise-and-tenon joinery for maximum strength, the settee is 48-in. long, 21-in. deep, and 54-in. high. Weatherend Estate Furniture, Rockland, Maine.



47. Game table
The TimberForm Profile game table is made of gridded, welded wire and is supported by four-in. schedule-40 steel pipe. The table with seat pods can be surface-mounted or embedded and comes in over 170 colors. Matching benches, litter containers, planters, and ash receptacles are also available. Columbia Cascade Co., Portland, Ore.



48. Artificial rock formations
Rock formations made from precast GFRC (glass-fiber reinforced concrete) simulate the look of several rock types, including basalt, limestone, desert rock, and granite. Professional services include design of rockwork and water features, as well as technical consulting on specific applications. Custom Rock International, St. Paul, Minn.

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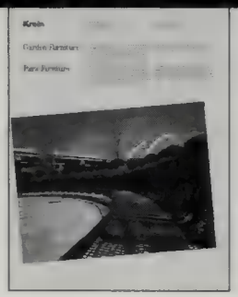
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49. Granite pavers
Cold Spring supplies a broad range of granite products, from split pavers to flagstone, in a variety of colors and sizes. Products also include "unitized" pavers that are pre-assembled in rectangular or fan patterns, and "tumblestones" that replicate the look of cobblestone streets. Cold Spring Granite Co., Cold Spring, Minn.



50. Retaining-wall system
A four-page brochure introduces Porcupine Retaining Wall Systems, which use precast-concrete blocks that interlock with each other so no mortar is needed. The systems allow slopes to be changed as a wall goes up, and are flexible enough to allow wall to curve either in or out. Two colors are available. The Burns & Russell Co., Baltimore.



51. Outdoor furniture
Kroin garden and park furniture—including wire-mesh chairs, tubular-frame tables, anatomically contoured park benches, and heavy-gauge garden umbrellas—are shown in a 16-page brochure. Park benches were designed for the 1972 Munich Olympics and can form a variety of curved and linear configurations. Kroin, Inc., Cambridge, Mass.



52. Garden furniture
The Van Klassens catalog present the company's line of wood garde furniture. Solid mahogany, epoxy joints, and low-maintenance Awlgr paint are standard features of the company's swings, chairs, love sea and settees. Furniture is shipped assembled, except for tables that have detached legs. Van Klassens, Inc., Knoxville, Tenn.



53. Iron fencing
Aegis ornamental-iron fences feature strong Forerunner rails, internal retaining rods, and specially designed panel brackets. The company's new four-color brochure shows both industrial and residential products and includes data on structure, design, and options. Panel design is a component system for easy shipping. Ameristar, Tulsa, Okla.



54. Paving system
The Uni Eco-Stone Paving System includes funnel-like openings in the pavement surface which encourage rainwater infiltration, thereby reducing or eliminating stormwater runoff. The system consists of interlocking concrete pavers with spaces in between for infiltration. Uni-Group U. S. A., Palm Beach Gardens, Fla.*



55. Exterior lighting system
"Now You See It . . . And Now You Don't" is the title of the brochure explaining the PISA Lite Landscape and Walkway Illumination System. Designed to fit with the PISA Retaining Wall System, the acrylic-lens lights blend with the system's concrete blocks so they aren't noticed in daytime. PISA Retaining Wall Systems, Palm Beach Gardens, Fla.



56. Concrete pavers
Special features and design consi ations are presented in "Pavemen Design With Concrete Pavers," a four-page brochure published by Concrete Paver Institute. Use, ap cation, assembly, load transfer, an installation of concrete pavers are also addressed by the brochure. C software is available. Concrete Pa Institute, Herndon, Va.*



57. Porous paving
Grasspave2 is a porous paving system consisting of interlocking plastic rings filled with sand and grass set on top. Because the system lets rainwater through to the ground, minimizing the need for drainage systems, can be filled with Inc.



58. Metal chair
The Traverse Chair has a tubular-steel frame with either a grid or perforated-metal seat panel. All metal parts are finished with Pangard II powdercoat system, which is a hard but flexible coating that resists rusting, chipping, peeling, and fading. Landscape Forms, Inc., Kalamazoo, Mich.



59. Retaining-wall system
StoneWall SELECT is a concrete-block retaining-wall system that has electrical-cable slots cast into each block so lighting can be easily installed. The system, which has no components that can corrode or deteriorate, can accommodate steps, corners, inside and outside curves, and serpentine walls. ICD Corp.,Milwaukee.



60. Outdoor furniture
A 40-page four-color catalog displ Victor Stanley's diverse lines of m and wood outdoor furniture, inclu its Ironsites collection of steel-ba benches and trash receptacles, th Parsons Series of wood-and-meta public furniture, and the Classics of cast-iron benches. Victor Stanl Inc., Dunkirk, Md.

* *Product Data on CAD*

Products/Literature

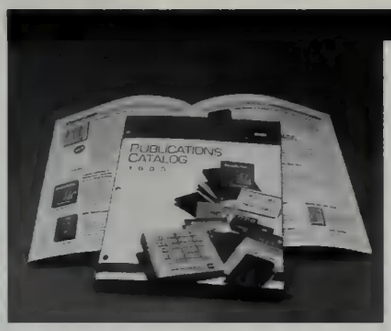
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. Concrete hardener
ht new colors have been added to Lithochrome line of color harden-. The new pastel colors—oyster te, ash white, antique rose, chalk e, weathered sage, stone gray, sh beige, and smoke beige—com-ment the 16 colors already in the of permanent, non-fading, dry-ke color hardeners. L. M. Scofield ., Los Angeles.



62. Concrete finishing
Bomanite Color Flash is a multi-colored quartz-aggregate blend that is cast on the surface of new concrete surfaces such as paving. Available in four color blends of blue, green, red, and black with white aggregate, the new product offers added dimension and slip resistance to concrete flat-work. Bomanite Corp., Madera, Calif.



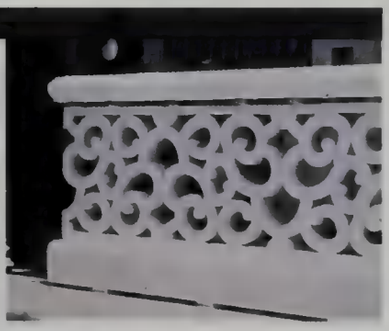
67. Reinforced-concrete design
The Concrete Reinforcing Steel Institute's 1993 publications catalog and price list describes manuals, software, and design aids for use in the design and construction of cast-in-place reinforced concrete. Product categories include detailing aids, bridges, testing, and pavement design. Concrete Reinforcing Steel Institute, Schaumburg, Ill.



68. Color and texture guide
The Precast/Prestressed Concrete Institute has published the "Architectural Precast Concrete—Color and Texture Selection Guide," a 260-page publication that illustrates 430 colors and textures for precast concrete panels. The guide includes 236 color plates and costs $40. Precast/Prestressed Concrete Institute, Chicago.



3. Precast ramp system
is precast-concrete ramp system ets new ADA requirements and is aptable to any height up to 58 in. ailable in units ranging from 4 to 9 in length (in 6-in. increments) and m 8 in. to 4-ft-10-in. in height (in lf-inch increments), the ramp can easily assembled and disassem-ed. Sullivan Precast Products, nox, Mass.



64. Baluster system
This new panel design meets the current UBC code for allowable opening, while still providing the maximum viewable area. The system consists of 24- by 24- by 5-in. panels in an alternating mirror image of each other, and was designed by Bob Ray Offenhauser & Associates. Von Hausen Studio, Compton, Calif.



69. Cement and concrete video
An 11-minute video entitled "A New Stone Age: The Making of Portland Cement" offers an overview of the making of cement and its use in concrete. The video discusses concrete's energy efficiency and its emergence as an environmentally friendly building material. Accompanied by a booklet, the video costs $25. Portland Cement Association, Skokie, Ill.



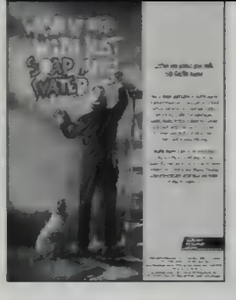
70. Fiber reinforcement
Caprolan-RC nylon fibers, which can be used as an alternative or in addition to wire mesh in concrete to control shrinkage cracking, will be listed in Underwriters Laboratories Inc.'s Fire Resistance Directory. High strength and toughness (15,000 psi) allow the fibers to reduce cracking and increase impact resistance. AlliedSignal Fibers, Petersburg, Va.



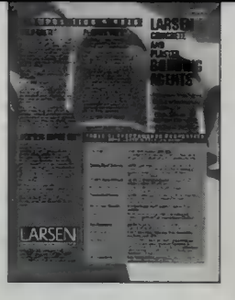
5. Curved metal formwork
new "crimp-curving" process can roduce custom-curving forms that e smooth, strong, and lightweight. asy to install, the formwork can be sed in a wide range of concrete con-ruction applications. Panel sub-rates suitable for curved formwork clude painted and unpainted steel p to 48 in. in width. Curveline, Inc., ntario, Calif.



66. Water repellent
Chem-Trete BSM 40 water repellent is a clear, penetrating, silane-based formulation that is suited for protecting concrete in high-rise applications. The protective coating chemically bonds with the substrate, creating a long-term barrier against wind-driven rain and other sources of moisture. Huls America, Inc., Piscataway, N. J.



71. Concrete sealant
The ProSpec Graffiti Master Sell Sheet provides an overview of some advantages of Graffiti Master sealant, citing the water-based product's ability to seal out spray paint, markers, chalk, and other graffiti. The sealant is safe for indoor use and can be washed with soap and water to eliminate graffiti. Watson Bowman Acme Corp., Amherst, N. Y.



72. Bonding agents
Larsen concrete and plaster bonding agents offer high-performance bonding of cementitious material direct to structural surfaces. Weld-Crete is a chemical concrete bonding agent. Plaster-weld is a plaster-bonding agent for interior use only. Acrylic Admix 101 is an integrally added bonding agent. Larsen Products Corp.,

Product Data on CAD disk

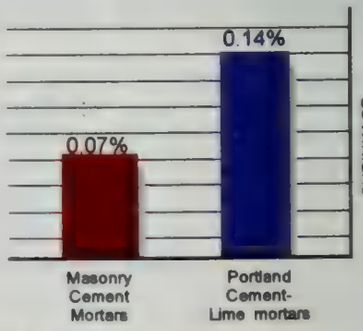
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Masonry Cement Helps Make Watertight Walls

Laboratory tests* show that masonry cement mortars shrink only half as much as portland cement-lime mortars. Crack less! So masonry cement mortars help make walls more watertight, less likely to leak. It's that simple.

**In a series of ASTM C 1148 tests, masonry cement mortars had only half the shrinkage of portland cement-lime mortars. Send for a free report.*

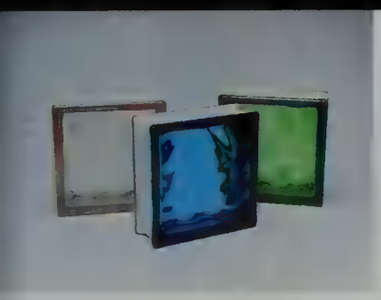


PORTLAND CEMENT pca ASSOCIATION

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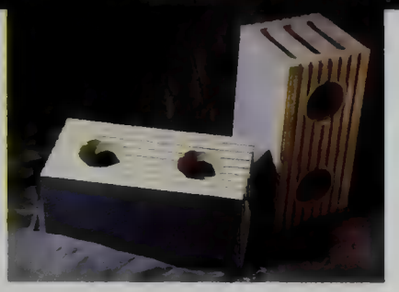
For more information, write item numbers on Reader Service Cards.



3. Colorful glass block
Solaris Trimline block comes in four styles that offer varying degrees of privacy. Peach, blue, and green integral colors are available. Aluminum grids as large as 8- by 12-ft facilitate installation, with glass only appearing on the exterior. Larger panels are possible for commercial uses by mullioning together standard sections. Acme Brick Co., Fort Worth.



4. Gasket liner holds thin brick
Brick gasket liner is a urethane mat with pockets that hold thin brick or tiles. The liner is attached to a precast bed. Thin bricks are then placed into the pockets, and concrete is poured over the assembly. This wet-casts the brick or tile into the concrete-panel face. Installation pictured: Museum of Modern Art, San Francisco. Scott System, Denver.



75. Seismic structural tile
A new construction in structural glazed facing tile adds two large vertical holes to the horizontally cored masonry unit. These holes allow placement of grout or steel bars to meet the security standards of the Federal Bureau of Prisons and Zone 4 seismic requirements. Stark Ceramics, Inc., Canton, Ohio.



76. Stone design manual
An architectural binder seeks to promote uniform detailing of dimension stone, including granite, limestone, marble, quartz-based stone, and slate. Sections cover ASTM master material specifications, text standards, installation recommendations, and typical details. Trade price: $89.50 plus shipping. Marble Institute of America, Farmington, Mich.



77. Glass block in new pattern
Extra glass block comes in a matrix design that combines sparkle and distortion of its multi-ribbed squares with transparent open areas. The pattern changes with movement, viewing point, and light source. It offers moderate light transmission and minimal privacy. Pittsburgh Corning Corp., Pittsburgh.*



78. Pyramid-shaped block
Pyramid-shaped block comes in concrete and clay brick, and is available in a wide range of colors and finishes. Block is modular at 7 5/8-in. square by 3 5/8-in. high to base of pyramid, which is at a 30-degree angle. Tile is 6-in. square. Custom sizes may be ordered. Pyridiam Block & Tile, Stamford, Conn.



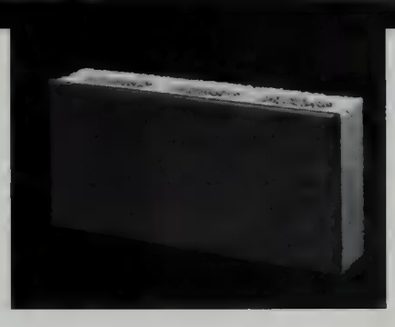
79. Damage-resistant corners
Modular pre-glazed concrete-masonry corner units are designed for high-traffic areas. They come in standard wall thicknesses, and eliminate the need for cutting and piecing. Reference points allow for easy alignment, and blocks are simple to tie and reinforce, says manufacturer. Burns & Russell Co., Baltimore.



80. Classical balustrades
Balustrade elements known as Regency Range are derived from classical motifs and Somerset, England's heritage of stonemasonry. Made of cast stone using natural-stone ingredients, the balustrading comes in four finishes and textures: Portland, Yorkstone, Cotswold, and Birmingham Red. British-by-Nature, Beverly Hills, Calif.



81. Glass-block shower kits
Glass-block shower enclosures come in kits. Aluminum extrusions at corners snap together with aluminum wall sections, making a symmetrical joint without mortar or grout. Free software contains detail drawings and installation details on 3.5-in. diskettes for either AutoCAD DWG or generic files in DXF.IBP Glass Block System. Acme Brick Co., Fort Worth.*



82. Improved block glaze
Manufacturer's Astra-Glaze-SW lightweight concrete blocks now come with an improved finish that makes for greater color consistency and brighter colors. With recent USDA approval, the units may now be used for food-processing applications. Trenwyth Industries, Inc., Enigsville, Pa.



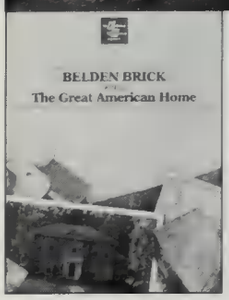
83. Cast-stone ornament
Friezes, keystones, and medallions made of cast stone and known as SculptStone are described in an eight-page brochure. Units come in assorted shapes and sizes up to 48 in., and in historical, geometric, animal, and floral motifs. Data available on CAD for AutoCAD. Pineapple Grove Designs, Delray Beach, Fla.*



84. Stone identification guide
Quick-reference stone pocket guide makes it easier to identify marble and granite. Each of several booklets contains over 135 3- by 5-in. full-scale color plates of natural-stone types, each identified on the back with name, country of origin, and technical data. VMC-TAC, Dallas.

Product Data on CAD disk

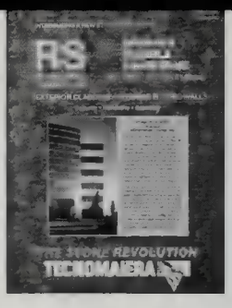
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85. Brick
This four-color brochure highlights some of the advantages of brick as a building material and offers an overview of the Belden Brick Co., which has been operated by the same family for over 100 years. The company's bricks, made in six plants in Ohio, are available in over 200 colors, sizes, and textures. The Belden Brick Co., Canton, Ohio.



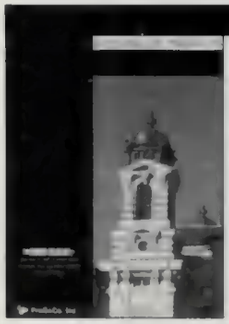
86. Greek marble
A broad range of marbles from Greece are displayed in a four-color product sheet distributed by the Hellenic Export Promotion Organization. The sampling ranges from ash white marble from the island of Paros to the pink stone of Lafkos and the green of Tinos. Greek Trade Commission, New York City.



87. Thin stone sheets
RSgs7 is a 5/16-in. composite sheet of ultra-thin natural marble, granite, or limestone reinforced with fiberglass and epoxy. The sheets can be applied in large sizes with adhesives and mechanical attachment to exterior surfaces, interior walls, floors, ceilings, soffits, movable partitions, and furniture. Marble Technics, New York City.



88. Clay products and tile
In Partnership with the Imagination is a video that serves as an introduction to clay products and tiles from Endicott. Available for free, the video covers the company's broad range of colors, textures, and shapes of bricks and clay products. Endicott Clay Products Co./Endicott Tile Ltd., Fairbury, Neb.



89. Masonry restoration
A complete specifications guide for Sure Klean Restoration Products is available on computer diskette, and comes with a printed copy, product brochure, and product data sheets. The diskette is free for both DOS and Macintosh users in 3.5-in. and 5.25-in. sizes. The guide follows CSI 3-Part format. ProSoCo, Inc., Kansas City, Kansas.*



90. Architectural masonry
Architectural masonry products, as well as roof tiles and landscape products, are available from companies around the country under the Oldcastle brand name. Products include masonry units, ballast pavers, plaza pavers, interlocking pavers, fire-rated wall systems, energy-efficient wall systems, and segmental retaining walls. Oldcastle, Inc., Atlanta.



91. Chinese granite
A four-page color brochure introduces Cheer Skill's collection of marble and granite from China and around the world. The line includes some stones unique to China, as well as more familiar stones from places like Italy. The parent company is in Hong Kong, but American distribution is from the Midwest. Cheer Skill (USA) Co., Park Forest, Ill.



92. Minnesota limestone
Dolomitic limestone from southern Minnesota comes in three colors—cream, golden buff, and gray—and can be cut either across the stone beds to reveal veins or with the sedimentary bed to reveal flowered patterns. Mainly calcium carbonate and magnesium, the stone has above-average hardness. Mankato-Kasota Stone, Inc., Mankato, Minn.



93. Faithface masonry
FaithFace masonry units offer the [illegible] of natural stone in a [illegible] and shapes. [illegible] either burnished or [illegible] can have a combed finish. Scoring [illegible] available on most [illegible] Products, divi[illegible] & Russell Co., [illegible]



94. Water repellent
Dry-Block is a system of two liquid polymeric admixes, one that is mixed with concrete during manufacturing and the other that is used during [illegible] preparation. The admixes become integral with the concrete, forming a low-maintenance water repellent. Grace Construction Products, Cambridge, Mass.



95. Fossil stone
Examples of fossils found in Solnhofen limestone are shown in the company's four-page Fossilstone brochure. Formed during the Jurassic Period 150 million years ago and incorporating the remains of nautilus, marine worms, and corals, Fossilstones come in colors such as beige, gray, and green. Solnhofen Natural Stone, Inc., San Francisco.



96. Glass block
A 16-page catalog from Pittsburgh Corning presents design information, detail drawings, and specifications for mortared installations for its Glass-Block line of products. The catalog, including drawings, is also available on 5.25-in. and 3.5-in. computer diskettes. Pittsburgh Corning, Pittsburgh.*

* *Product Data on CAD disk*

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The Designer's Choice in Architectural Concrete Masonry

TRENWYTH



Nowadays, building designers must be cost-conscious, environmentally sensitive, durability-minded, while *still* providing structures that are useful and attractive. Their solution? Trenwyth's high-quality, state-of-the-art prefaced and prefinished masonry units.

Trenwyth Industries, Inc. has been supplying architects, engineers, masons, and owners with quality masonry units for 30 years. Since its establishment, it has grown to be the world's largest manufacturer of glazed blocks and ground face units. Trenwyth's manufacturing operations near York, Pennsylvania and Rockford, Illinois now produce millions of custom-made architectural blocks a year.

An extensive sales and distribution network delivers Trenwyth products to building projects around the world. Ten direct sales offices are located in major U.S. cities and an active and growing dealer network of 68 companies services the United States, Canada, and the United Kingdom.

As a result of its reputation for high quality and service, Trenwyth has experienced dynamic growth--over a 7 year period, growing from 40 to 200+ employees and multiplying revenues by 7. Viewing itself as a large company in an early growth phase, Trenwyth is implementing organizational structures to manage its future growth.

From custom matching colors to providing design and detail recommendations, Trenwyth is committed to total customer satisfaction, ongoing investment in research and development, a positive work environment, and above all, practicing high ethical standards.

The Designer's Choice in Architectural Concrete Masonry

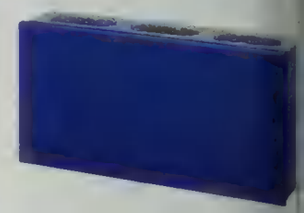
TRENWYTH

astra-glaze-s
Glazed Masonry Units

ASTRA-GLAZE-SW glazed maso units are lightweight concrete blo ing a thermosetting glazing comp permanently molded to one or m faces. The glazing compound is c heat-treated in gas-fired tunnel k becomes an integral part of the u cial manufacturing processes prov permanent, impervious satin-glaz with exceptional resistance to sta abrasion, impact, and chemicals. F **ASTRA-GLAZE-SW** walls can be structed quickly and easily in a si trade, one-step operation.

BENEFITS:

- Sunlight-stable colors
- Decorative versatility
- Easy-to-clean, sanitary surface
- No need to paint or refinish—
- Built-in Severe Weather resistar
- 80 Standard colors
- Numerous shapes and sizes





RENDSTONE®
GROUND FACE MASONRY UNITS

RENDSTONE ground face masonry
its are integrally-colored concrete blocks
th one or more faces ground to expose
e variegated colors of the natural
gregates. A factory-applied, clear satin
oss acrylic accentuates the highlights of
ch burnished face and provides resistance
moisture and staining.

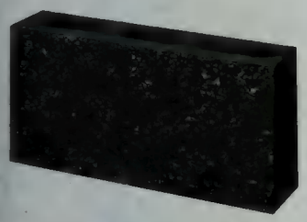


RENDSTONE® plus
ROUND FACE MASONRY UNITS

ENDSTONE PLUS filled and polished
sonry units are the ultimate in ground face
cks. After the initial grinding process, the
es and interstices are filled with a cemen-
ous grout. The face is then polished
ooth in a multi-stage process. A clear
n gloss acrylic seals and covers the face,
lting in a smooth terrazzo-like surface.

NEFITS:

- atural aggregate beauty
- raffiti-resistant cleansability
- w maintenance—
  r long-term savings
- Standard colors
- amfers, special shapes and cuts
  available



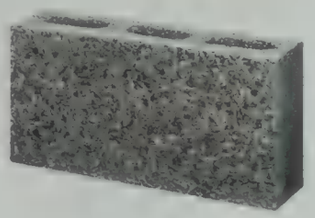


aggre-blok®
aggregate faced units

AGGRE-BLOK aggregate faced masonry units are concrete blocks with exposed aggregates cast onto one or more faces. These units offer the beauty and texture of natural stone aggregates with all the design and installation advantages of concrete blocks. AGGRE-BLOK units were first introduced in the early 70's and even the earliest projects look as good as new today.

BENEFITS:

- Rugged natural stone texture
- Numerous shapes and sizes
- The structural integrity and modularity of blocks
- Natural aggregate beauty
- 9 Modern colors available





ACOUSTA-WAL
sound-absorbing masonry units

ACOUSTA-WAL sound absorbing masonry units work on the same principle as a car muffler—they absorb sound using the Helmholtz principle. The closed-end cavities of the different sized units resonate to sound waves of various frequencies and convert them harmlessly to heat. These blocks are excellent for auditoriums, gymnasiums, power plants or wherever noise is a problem.

In addition to absorbing unwanted noise within a room, ACOUSTA-WAL units greatly reduce the transmission of noise to an adjacent room or area (called "Sound Transmission Loss").

BENEFITS:

- Units provide greatest absorption within specific frequency ranges
- Sound absorption built-in for the life of the building
- Finish versatility—ACOUSTA-WAL units are available with a glazed, ground face, or exposed aggregate finishes
- Easy installation
- Increased sound transmission loss





INSTALLATIONS FEATURED

Front Cover:

ASTRA-GLAZE-SW units
Churchill Public School
Ottawa, Ontario
Architects:
Griffiths Rankin Cook Architects
Photography:
Adrian Searle Photography

TRENDSTONE units
Dematha Catholic High School
Hyattsville, MD
Architects: The Mulhern Group

ACOUSTA-WAL units
Olney Elementary School
Olney, MD
Architects: DECMM Architects

AGGRE-BLOK units
Units shown:
Wyoming White, 16" x 16"

Inside Pages:

TRENDSTONE PLUS units
Regional Headquarters,
Honda Canada
Boucherville, Quebec
Architects: Bobrow Architects

ASTRA-GLAZE-SW units
Fairland Aquatic Center
Laurel, MD
Architects: Hughes Group

TRENDSTONE units
Dematha Catholic High School
Hyattsville, MD
Architects: The Mulhern Group

AGGRE-BLOK units
Units shown:
Wyoming White, 16" x 16"

ACOUSTA-WAL units
Olney Elementary School
Olney, MD
Architects: DECMM Architects
Also shown:
ASTRA-GLAZE-SW units



TRENWYTH INDUSTRIES, INC.

Call Trenwyth headquarters at 1-800-233-1924 for design, technical, or specialized information. Call SWEETS BuyLine at 1-800-633-1180 for your nearest sales representative.

TRENWYTH

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Kansas City, MO (816) 229-6780
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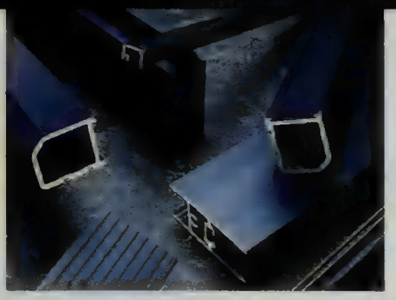
For more information, write item numbers on Reader Service Cards.



97. Ornate replica
A cast-iron canopy at the Joliette, Illinois, train station was replicated in sand-cast aluminum painted to match the Beaux Arts original (A. M. Kinney Associates, Inc., restoration architects). Rubber molds of the elaborate elements were used to recreate the intricate details using the lost-wax process. Historical Arts & Casting, Inc., West Jordan, Utah.



98. Custom-rail system
The Decorail is an integrated series of post, panel, rail, kneewall, traffic control, display, and partition components in an Art Deco motif. The balcony rail pictured has Art Deco-style finials on top of anodized-brass posts holding panels of safety glass. Wylie Systems, Etobicoke, Ont.



99. Blue anodized aluminum
The Spectracolor electrolytic color-anodize process allows aluminum to be manufactured in a variety of metallic shades previously unavailable. KeyAno 2000 blue, offered in both dark and light tones, will be followed by red, green, gray, and bronze colors. Metal meets all pertinent ASTM test standards. Keymark Corp., Fonda, N. Y.



100. Cast-iron stairs
A replica of a decorative straight-stair style often found on 19th-century townhouses. The cast-iron Kensington can be ordered in modules, from a two-step unit for a low porch to a multiple-landing fire exit installation as shown. Stairs come in kit form, with treads, risers, side panels, and fasteners. Steptoe & Wife, Toronto, Ont.



101. Multidirectional metal
Pattern 6-HC can be used at various angles, eliminating the waste of trimmed pieces. The design is said to diffuse light evenly, without hot spots, and to be more rigid than flat metals. Shown in satin-finish brass, the pattern comes in a number of colors, metals, and finishes, and gauges up to 3-in. thick. Rigidized Metals Corp., Buffalo, N. Y.



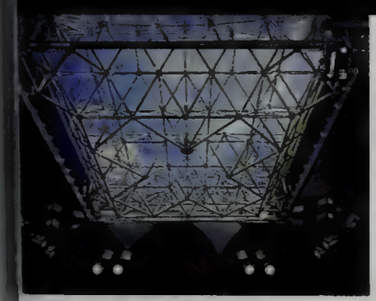
102. Long-span catwalk
The Heavy Duty Grip Strut catwalk spans 24-ft openings with minimal deflection, reducing costs of extra supports. Large, diamond-shaped openings will not collect gravel, mud, snow, or ice; steel grating available up to 36-in. wide with 5-in. integral toeboards. GS Metals Corp., Pinckneyville, Ill.



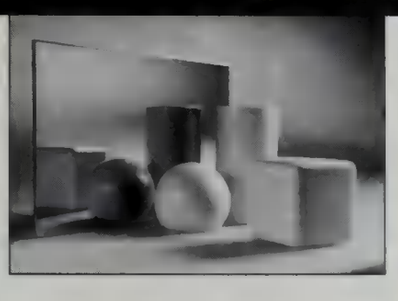
103. Pre-engineered stair
Furnished factory-built to specified dimensions, the Quick Stair incorporates a standard design with three tread and three handrail options. Pre-poured treads are said to provide the sound-dampening of conventional concrete-pan treads; stair meets all code requirements. CAD-format details available. Anderson Industries, Denver.*



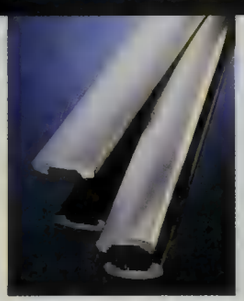
104. Nylon-over-steel rail
A new process makes an environmentally safe, cadmium-free nylon product, as well as greatly improving UV- and weather-resistance. ADA-compliant rail and balustrade systems are built with colorful nylon over a continuous, galvanized-steel core; connections are internal, with no exposed fasteners. W&W Sales, Ltd., Spring Valley, N. Y.



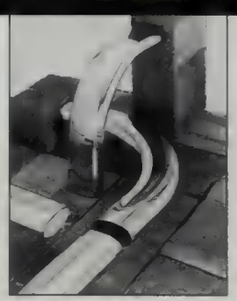
105. Interior spaceframes
Low finishes and framing geometries are offered for the Meroform space-frame, suggested as a design solution for ceilings, displays, and interior graphic structures. Chrome, anodized, and many powder-coat color finishes. MERO Systems Group, Div. of MERO Structures, Inc., Germantown, Wis.



106. Non-directional stainless
Stainless-steel sheet has a totally non-directional mirror-polish finish. Suitable for elevator cabs, column covers, ceilings, and other architectural applications, metal may also be ordered in bronze, blue, gold, red, green, and black electro-chemical colors. Clark Metals, Inc., Gardena, Calif.



107. Nickel-silver rails
A new handrail-metal option from this architectural-metal manufacturer, nickel silver (also referred to as white bronze) adds a warm silver color to interiors. Unprotected metal will tarnish to a mottled gray-green patina in about six years. Julius Blum & Co., Inc., Carlstadt, N. J.



108. Oval handrails
An oval extrusion used in marine applications, British-made Oval 316 tubing is now available for handrails, spiral staircases, barriers, and other architectural components. Made in sizes from 3/4- to 5-in., tube can be supplied with radius bends and forms in both planes, in satin-mill and mirror finishes. Malcolm Cole Ltd., Opa-Locka, Fla.

Product Data on CAD disk

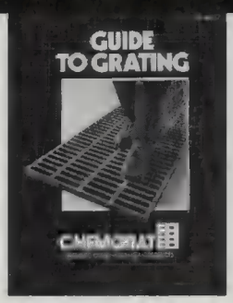
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5 • METALS Literature

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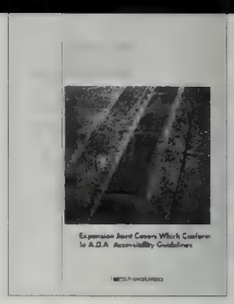
109. Elastic expansion joint
Completely non-metallic, the Interspan joint withstands the climate, loads, and movement of exposed concrete decks, parking ramps, and other automotive- and pedestrian-traffic structures. Installed with epoxy applied on three surfaces. Cannot catch heels or trap dirt. Larsen Products Corp., Rockville, Md.



110. Gratings and stair treads
A PC-based electronic manual as well as a 16-page catalog help design and specify FRP grating, stair treads, and floor plate. Includes charts, load and deflection tables, and stair-tread calculation programs for all slip-resistant, one-piece grating products. Chemgrate Corp., Woodinville, Wash.*



111. Vinyl-rail system
Extruded vinyl-pipe railings are suggested for marine, industrial, residential, and other applications where appearance or cost of maintenance is a concern. The Perma-Rail component system permits site-specific assemblies from heavy-gauge vinyl fittings. Perma-Rail, Inc., Columbia, Md.



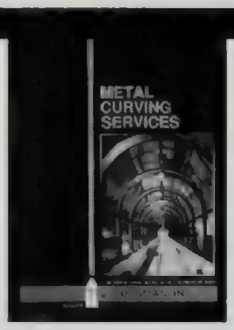
112. ADA-compliant joints
The Iso-Flex textured seal makes concrete expansion joints watertight while providing slip-reducing traction for pedestrian and automotive traffic. An illustrated brochure describes the molded seal and lists technical data and test results. Harry S. Peterson Co., Berea, Ohio.



113. Aluminum railing
An architectural catalog explains the functional, structural, and design features of Series 900 heavy-duty aluminum-rail components. Offered in rail and post styles that meet the specific decorative and code requirements of industrial, multifamily, residential, and institutional applications. Superior Aluminum Products, Russia, Ohio.



114. Graphics on metal
Fabricator can execute custom and standardized finishes on sheet metal, from design concept to completed installation. Techniques include multi-directional and non-directional brushing, sandblasting, polishing, and electroplating on stainless steel, brass, copper, and nickel silver. Surface Design + Technology, Hialeah, Fla.



115. Curving capabilities
A six-page booklet outlines various methods of metal curving, available for any architectural project requiring custom shapes in aluminum, brass, steel, bronze, and other metals. Applications include window, skylight, and storefront framing, handrails, lighting fixtures, and signage structures. J. Sussman, Inc. Jamaica, N. Y.



116. Metal refinishing
Brochure on architectural field-service capabilities provides an overview of "state-of-the-art" painting processes and restoration techniques for column covers, panels, curtain walls, storefronts, entrances, and other building components of metal, porcelain-on-steel, brick, concrete, glass, and plastic. Linetec, Wausau, Wis.



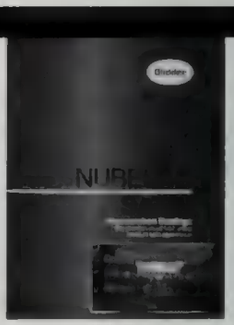
117. Parking structures
Catalog details specialty construction products that support the long-term durability of parking structures, including waterproofing systems, traffic coatings, and joint systems. Prospective users can identify products by name, type, and application. Jenn Industries, Inc., Anderson, S.C.



118. Anodizing standards
An architectural application kit contains samples of the six most commonly produced and requested anodized-aluminum colors included in the industry group's color uniformity assurance program: what you see is what you'll get. Aluminum Anodizers Council, Wauconda, Ill.



119. Unobtrusive joints
The Flush Thinline expansion-joint cover, offered in one- and two-in. widths, is said to blend well with adjacent surfaces, as its smooth dual-durometer gasket is flexible enough to allow full movement without needing surface grooves. Conspec Systems, Inc., Muncy, Pa.



120. Industrial coatings
A brochure on Nubelar Satin fluorocarbon coating for exterior aluminum, galvanized steel, or Galvalume includes a spec sheet with physical-property data, and color photos of architectural applications such as cladding, fascia, curtain wall, spandrels, and column covers. The Glidden Co., Cleveland.

* *Product Data on CAD disk*

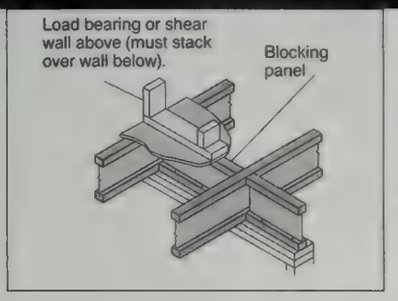
For more information, write item numbers on Reader Service Cards.



121. Molded-stone millwork
Cassel, a composite, stone-look product for interior use, comes as veneer wall panels, 5/16-in.-thick, and as trim, furnished as crown moldings, baseboards, light cover, and door surrounds. Installs by adhesive or clips; has a Class I fire rating. DecoForm Corp., Etobicoke, Ont.



122. FRP belvedere
For a restoration of Buffalo's Niagara Mohawk building, Kideney Architects replicated weathered terra-cotta elements in fiberglass-reinforced plastic. Rubber molds copied the original elements of the rooftop lantern to create new pieces said to be indistinguishable from the ceramic ones, even up close. Molded Fiber Glass, Union City, Pa.*



123. No-squeak floor joists
The Silent Floor structural system now features Performance Plus web members, which combine the strength of oriented-strand board with the dimensional stability of plywood for a stronger, more weather-resistant joist. Also, the systems's Micro-Lam (laminated-veneer lumber) flange has been made stronger. Trus Joist MacMillan, Boise, Idaho.*



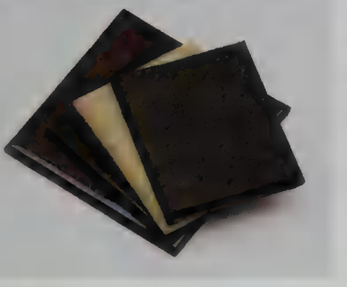
124. Solid-surface selection
The Avonite range of solid-surface material now includes 30 different solid colors and stone-look patterns. All can be specified in matte, satin, or gloss finish. New colorations pictured are limestone, quarry gray, royal sapphire, and desert tan. Avonite, Belen, N. M.



125. Pastel woodgrain HPL
Cool blues and greens, a soft yellow, and a copper color, while not found in natural wood, are offered by this Italian source of decorative high-pressure laminates in a new line, Serie Acero Legni Colorati. There are six woodgrain colors, all in the Soft Surface finish. Abet, Inc., Secaucus, N. J.



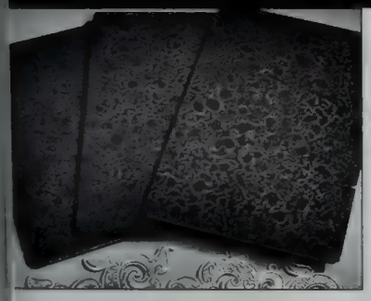
126. Solid-surface CAD
New software provides help in the specification, fabrication, and installation of Fountainhead solid-surface material. On 5.25- or 3.5-in. disks, the program has over 150 drawings for use with AutoCAD. Applications include commercial food-service counters, toilet partitions, and wet walls as well as residential uses. Nevamar, Odenton, Md.*



127. Biocomposite material
NewStone is said to look like granite and work like wood. Made from recycled and renewable resources—soybean protein and used newspaper—its random pattern disguises joints. Applications include desktops, furniture, trim, and windowsills. Tested to ASTM standards, it has a Class 2 fire rating. Phenix Composites, Inc., Mankato, Minn.



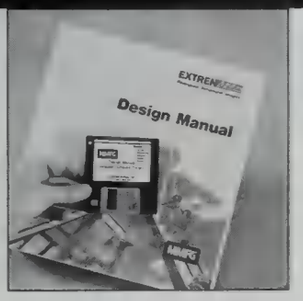
128. Chemical-resist composite
Trespa solid architectural material combines color selection with reagent-level chemical resistance. It is non-porous and will not support bacteria or fungus. Various grades are suggested for lab tops and shelving, as shown, as well as furniture, lockers, toilet partitions, and exterior cladding. Hoechst Celanese, Somerville, N. J.



129. Fashion laminate
Marblescent veining on dark copper, sapphire, and purple backgrounds characterize this maker's new Metec pattern laminate. Designs available in a choice of surface textures, including Hi-Velvet and pebbly Crystal. Applications include elevator cabs, wall panels, furniture, and cabinetry. Westinghouse Micarta, Hampton, S. C.



130. Formable sheet
Architect Michael McDonough's Ribbon Candy Chair demonstrates the unique properties of Nuvel, jointly developed by General Electric and Formica. Said to have many of the appearance and performance qualities of traditional solid-surface material, such as seamability, at less cost, Nuvel can be postformed easily. Formica Corp., Cincinnati.



131. Fiberglass structural shapes
A design-manual computer program offers help in working with Extren beams, columns, and other structural components, and Duradek non-corroding decking. Specification options include deflection limitations, beam conditions, and loads. Hard copy also offered. Cost: $99.95. Morrison Molded Fiber Glass, Bristol, Va.*



132. Nature-motif laminate
A line extension added 22 new colors and patterns to the Design Group I collection. Shown is Caldera Jade, a blend of verdigris with taupe and gray colorways. A new finely textured standard finish, #60, provides consistent gloss levels regardless of the lay of the material. Architectural sample program. 800/433-3222. Wilsonart, Temple, Tex.

Product Data on CAD disk



A floor to cover all floors.



PARQCOLOR® is a state-of-the-art flooring that enables you to change the environment in any room without having to undertake long, dusty operations. Easy to install, with simple stave jointing, PARQCOLOR® sits on top of the old floor, guaranteeing excellent structural compactness at all times. It is resistant to wear, impact, water, fire, acids and light because it is coated on both sides with high pressure Print HPL laminate, and it is suitable both for residential use and for heavy traffic areas. PARQCOLOR® comes in a vast range of designs and colors and, with unique treatment of the wood veins, also in pastel shades.

I wish to receive additional information regarding PARQCOLOR®.

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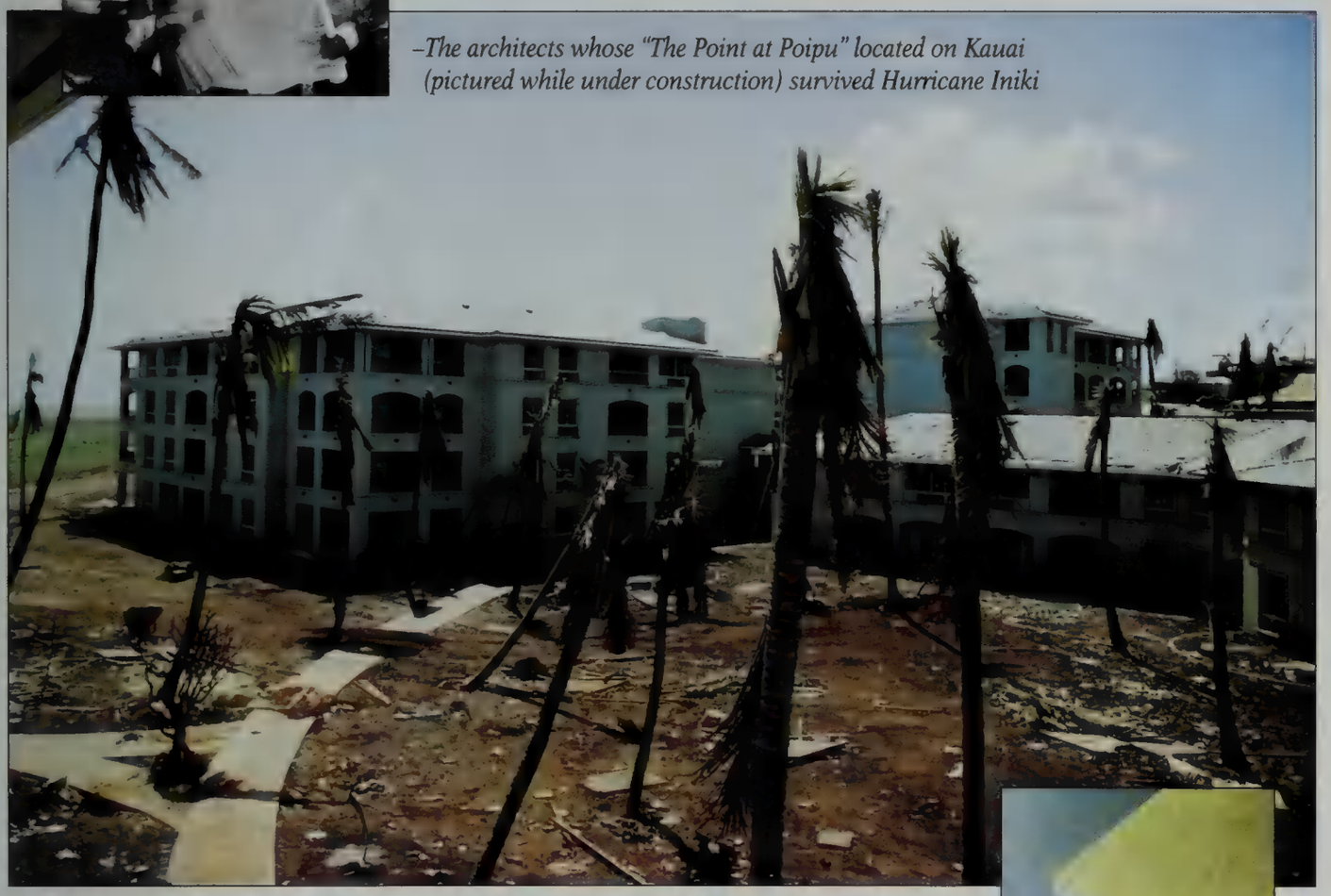
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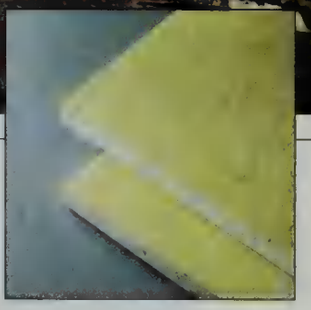
Circle 1012 on inquiry card

"We chose G-P Dens-Glass® Gold to protect the project from moisture. We were not expecting a hurricane."



–The architects whose "The Point at Poipu" located on Kauai (pictured while under construction) survived Hurricane Iniki





Architect: Group 70 International, Inc. / General Contractor: Fletcher Pacific Construction Company

G-P: You figured you'd use Dens-Glass® Gold to keep moisture out of the condos, and it ends up ...

ARCH: *...helping the condos stand up to hurricane force winds as well. The combination of the synthetic plaster we used and the Dens-Glass Gold gave the condos more structural stability than regular gypsum board could have.*

G-P: You counted on Dens-Glass Gold for protection from sea spray, right?

ARCH: *Yeah, constant sea spray riding in on lovely breezes up to 42 knots. That was a key reason we specified Dens-Glass Gold – paper-face can't touch it for moisture protection.*

G-P: So when Iniki arrived, the condos survived the winds *and* the rain.

ARCH: *Frankly, we were astonished. You know, over 85% of the buildings on the island were damaged. No one would have expected Dens-Glass Gold to withstand that kind of storm. But it is made for high performance. Its construction is totally unique. Silicone and fiberglass, right?*

G-P: Silicone-treated core and embedded fiberglass mats front and back, with the gold-colored alkali-resistant coating.

ARCH: *And it's those fiberglass mats that make it more stable than paper-face.*

G-P: By the way, G-P backs Dens-Glass Gold with a six-month limited warranty against moisture deterioration when it's fully exposed to the weather. It's also warranted for 5 years against manufacturer defects.*

G-P: So, you're a pretty satisfied customer?

ARCH: *And you're a master of understatement.*

*For a free brochure on Dens-Glass Gold including warranty information, call 1-800-BUILD GP (284-5347), Operator 730. For technical assistance, call 1-800-225-6119. (In Georgia, call (404) 987-5190.) Look for us in Sweets, Section #09250/GEN.

Solve it with G-P.™

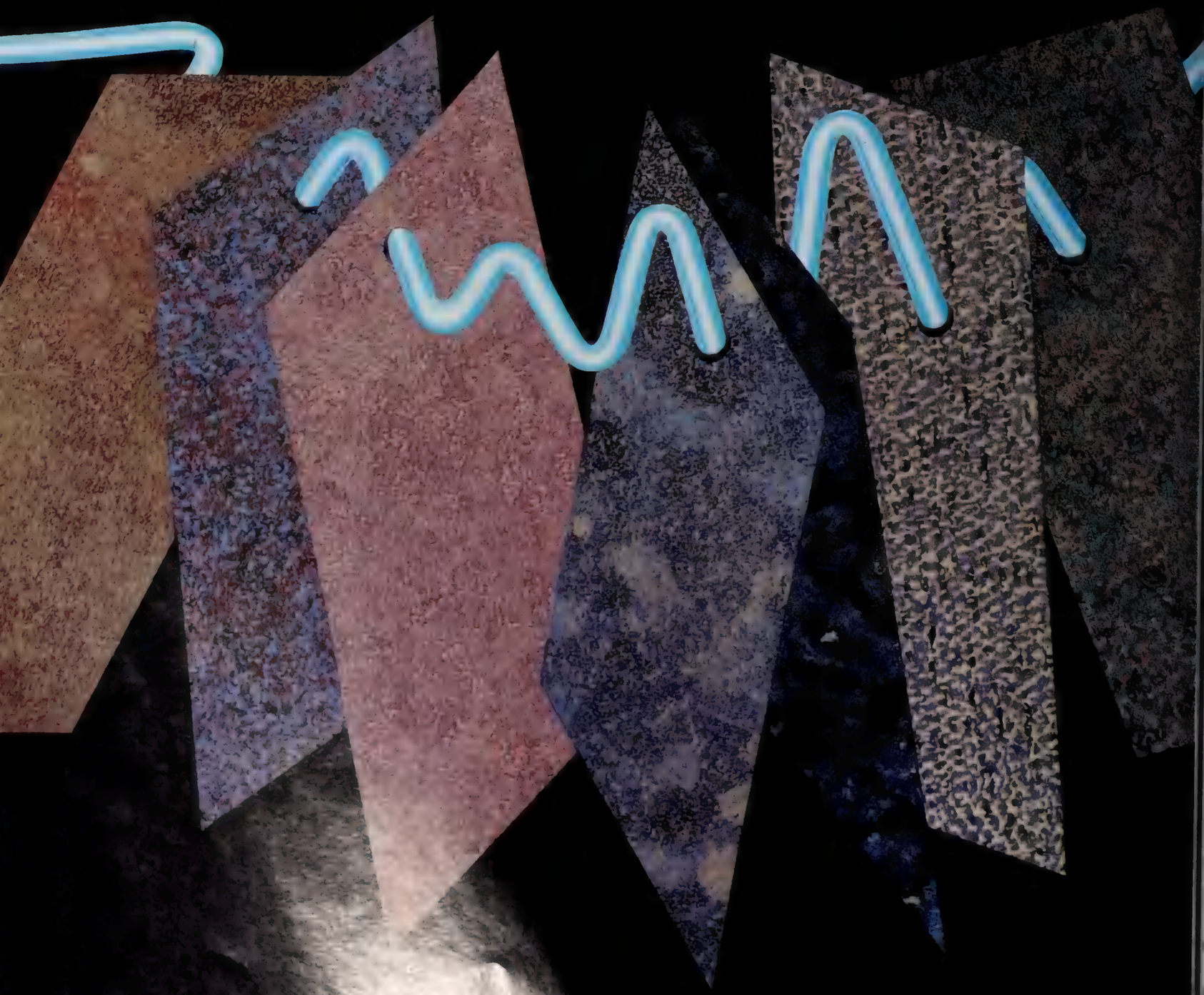
Georgia-Pacific

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Refractions™ Collection

The company that invented laminate...



invents it ag

ation introduces the **Refractions™ Collection,** nineteen pearlescent solid, patterned and woodgrain lamina ght at every angle. A superior lacquer finish adds definition to each design. **SMS** technology, developed by Formica vides an incredible **S**cuff and **M**ar resistant **S**urface. Never have high-gloss laminates looked well. The **Refractions Collection** from Formica Corporation. Light-years ahead of its ti MICA for samples. © 1993 Formica Corporation

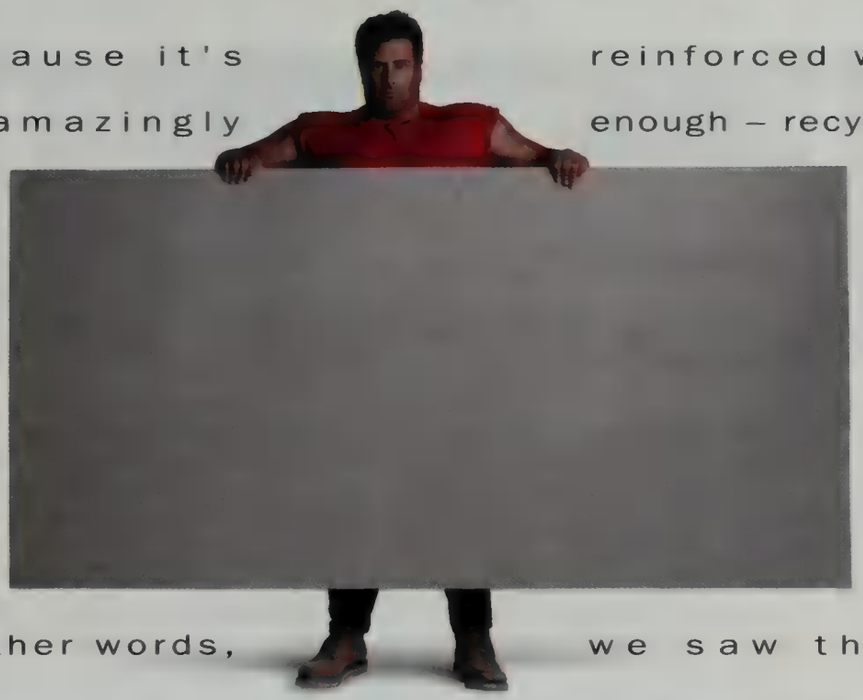
FORMICA® BRAND products

TOUGH as nails.

The first time you hammer a nail into a FiberBond® wallboard, you'll know just what we mean. It feels like you're putting the nail into the wall, not through it. FiberBond wallboard is extremely strong

And *strong enough*

and solid because it's reinforced with cellulose fiber from – amazingly enough – recycled newspaper. It can take more abuse than ordinary drywall. And it's more fire-resistant and sound absorbent. In other words, we saw the problems



TO keep them IN THEIR *place.*

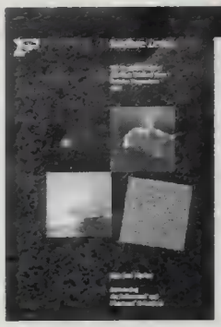
with ordinary wallboards and did something about it. To learn more about the FiberBond advantages, call **(208)772-6011** in Hayden Lake, Idaho, **(708)517-8833** in Chicago, Illinois or **(902)625-3070** in Canada.

Louisiana-Pacific FiberBond Wallboard
Doing something about it.™

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Circle 1015 on inquiry card

For more information, write item numbers on Reader Service Cards.



133. Laminate guidebook
At 50 pages, The Complete Book of Laminate Surfaces is just that, a walkthrough of corporate development and new product technologies, with all Formica products shown close-up and in-use. A Zip Chip program offers return-mail samples to architects and designers. Formica Corporation, Cincinnati.



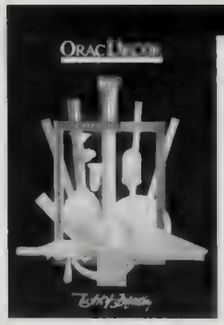
134. Beaded-plank panels
An APA-rated paneling for interior and exterior applications, 4- by 8-ft Ply-Bead sheets combine the economical strength of plywood with the decorative appearance of beaded planking. Available in two thicknesses, sanded and ready to paint or stain. Georgia-Pacific Corp., Atlanta.



135. Oak stairs
An eight-page catalog shows wood curved and spiral stairs in various configurations—as a grand, traditional staircase off an entry foyer, or as space-saving access to an office loft—detailing rail, tread, riser, and stringer options in pine, oak, and poplar. A. J. Stairs, Inc., Brick, N. J.



136. Fire-retardant wood
Dricon-treated fire-retardant wood is said to provide greater design latitude for the architect, as an alternative to construction materials classified as non-combustible for weather-protected applications. A 16-page catalog covers hygroscopicity, fire performance, appearance, strength factors, and other properties. Hickson Corp., Atlanta.



137. Architectural details
Orac Decor is a British-made line of high-density polyurethane cornice moldings, chair rails, door surrounds, and other authentically detailed decorative elements. A catalog offers 22 pages of material specifications, with all products shown in detail drawings and colorful application photos. Orac Decor U. S. A., Lodi, N. J.



138. Renewable resource
Noting that nothing can be sustained that cannot be renewed, Choices brochure discusses the environmental impact of building-material selection, and compares the low-energy and less-polluting production of wood construction members to concrete, steel, and petroleum-based products. Western Wood Products Association, Portland, Ore.



139. Laminated-veneer lumber
A 12-page catalog describes Gang-Lam W LVL as a minimal-waste, reliably performing member with more load-bearing capacity per pound than solid sawn lumber. Includes load tables and connection and framing details, and explains how Wood-E software helps design with engineered beams and joists. Louisiana-Pacific Corp., Portland,



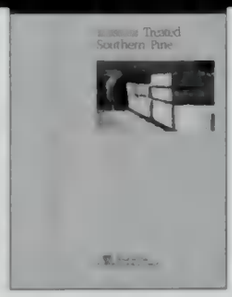
140. Rated wood construction
Revised in May, 1993, an 18-page booklet is described as the latest word on cost-effective fire-rated construction systems, using wood and wood structural panels. Brochure covers safety criteria, protection methods, and updated building-code and UL-listing references. $2 charge American Plywood Association, Tacoma, Wash.



141. Solid-surface palette
A design brochure [illegible] Corian colors [illegible] shades [illegible] hues based [illegible] not to fade under [illegible] uniform and [illegible] sheet, and to be [illegible] changing in room [illegible] light sources. [illegible] ton, Del.*



142. Wood-veneer laminate
[illegible] is a high-pressure [illegible] with the decorative [illegible] wood veneer, in [illegible] species, [illegible] sealing. The [illegible] said to make [illegible] that stands [illegible] to a 2-in. [illegible] Elk Grove



143. Southern pine lumber
A 14-page brochure explains how the unique cellular structure of Southern pine species facilitates pressure treatment with EPA-approved chemicals. Lists code requirements, design values, standard size and appearance considerations, and suggests fasteners and finishes. Southern Forest Product Association, Kenner, La.



144. Wood-care tips
Flood's 28-page Wood-Care Guide covers Seasonite stabilizing treatment, Dekswood cleaner, and CWF-UV ultraviolet-resistant clear wood finish, showing how the products look after application to new pressure-treated and other exterior wood surfaces, including roofs. Gives wood-problem-solving tips. The Flood Co., Hudson, Ohio.

* *Product Data on CAD dis*

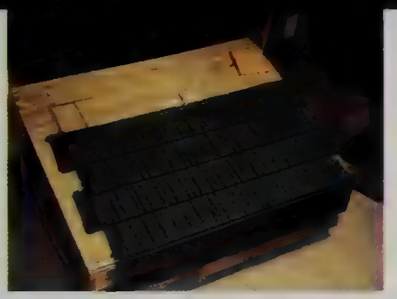
For more information, write item numbers on Reader Service Cards.



145. Roof-drainage products
Rain-carrying gutters, leaders, eave and slope boxes, downspouts, and ornamental conductor heads can be specified in copper, as shown, as well as aluminum in several high-gloss white, bronze, and brown enamels, and a galvanized finish. K-system gutters can come in single lengths of up to 37 ft. Benjamin Obdyke, Inc., Warminster, Pa.



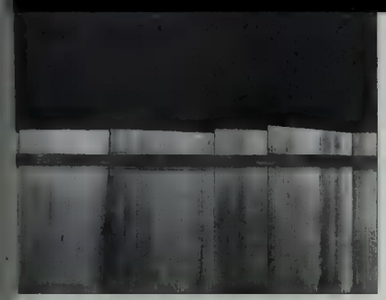
146. Push-button shading
This manufacturer offers a new full-function electrically controlled venetian blind for all its models and sizes of roof windows and skylights. Blinds are eggshell white, supported by four ladder cords to prevent sagging; they adjust to control glare and raise completely for an unimpeded view. Velux-America, Inc., Greenwood, S. C.*



147. French-style roof tile
A vertically embossed clay roof tile with a geometric design and defined texture, Gran Marseille comes in 20 standard colors, including new shades of patina green and Vermont gray. Field tile is 9- by 14-in., and is said to have exceptional cross-breaking strength and color fastness. Ludowici-Celadon, Inc., New Lexington, Ohio.



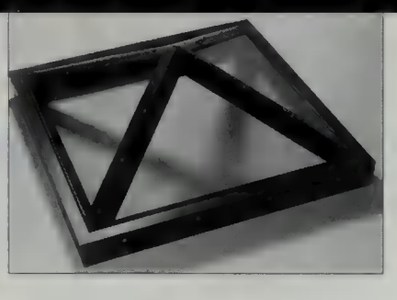
148. Reinforced mod-bit roofing
A roll-roofing cap sheet reinforced with a polyester mat, DynaLastic 180 SBS-rubber and asphalt roofing is said to offer elasticity, tensile strength, better accommodation of thermal stress, and to resist punctures. Surfacing granules come in black, white, and colors. Manville Roofing Systems, Div. of Schuller International, Inc., Denver.*



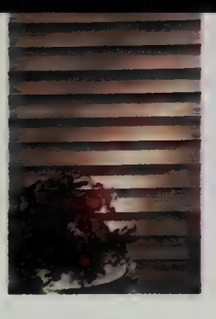
149. Cedar roof panels
The Cedar Panel Roof System is an easy-to-install, 40-in. long panel of cedar shakes or shingles designed for deep roofing and mansards. Backed with #30 felt, shingles are mounted on wood nailing and hurricane bars, and come in three different styles. Shakertown, Winlock, Wash.



150. Sealant for plastics
GE is marketing a silicone sealant developed specifically for primerless adhesion to plastics, including Lexan and other polycarbonate sheet products, PVC, and various types of fiberglass. Offered in four colors plus translucent, LexSil SPS2900 will not craze plastic. GE Silicones, Waterford, N. Y.



151. Pyramid skylight
Five sizes of aluminum-framed pyramid skylights come ready to install, completely assembled and glazed with insulated, tinted safety glass. Available in sizes up to 8- by 8-ft, with a 7/12 pitch, units meet all pertinent AAMA and building-code specifications. Skytech Systems, Bloomsburg, Pa.*



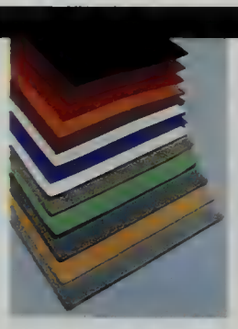
152. Cedar-look siding
A new line, Cedar Lane solid-vinyl siding is said to provide a natural, stained-wood appearance without the maintenance drawbacks of real cedar. Embossed with a random woodgrain, the siding comes in three clapboard profiles and coordinating trims, and accessories such as vents and lighting blocks. Georgia-Pacific Corp., Atlanta.



153. Fire stops
Firing Firecode penetration-sealing compound with Thermafiber safing insulation is said to offer an economical fire-stop system that blocks smoke, flame, toxic gas, and water to national building-code standards. Insulation is placed by hand, then the compound is troweled in place over it. United States Gypsum Co., Chicago.*



154. Rot-resistant shingles
Cedar+Plus CCA natural-cedar shakes and shingles, pressure-treated with an EPA-approved preservative and pesticide, offer a 50-year warranty against fungal decay, even in humid climates. The Clarke Group, Sumas, Wash.



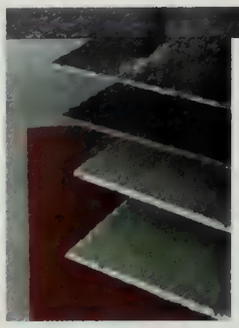
155. Custom-color roofing
This maker's reinforced, heat-weldable thermoplastic sheet can now be specified in computer-matched colors for roofs as small as 5,000 sq ft. Colored membranes add a decorative and functional design element to prominent, visible roofs. Sarnafil, Inc., Canton, Mass.



156. Panelized tile facade
A recent application of the Cygnus wall system by the architectural firm HOK used about 200,000 ceramic tiles, bonded with structural silicone, to build a 170,000-sq-ft facade with reduced radar reflectivity, a requirement of the governmental-agency client. Eastern Exterior Wall Systems, Inc., Lehigh Valley, Pa.

Product Data on CAD disk

For more information, write item numbers on Reader Service Cards.



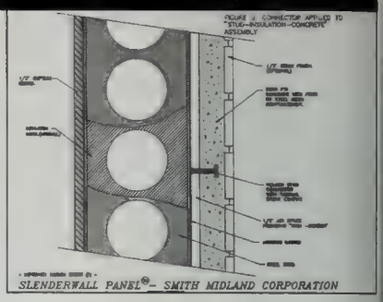
157. Roofing slates
Fiber-cement slate line offers same durable performance as natural slate at lower cost. Manufactured in two sizes, 10 5/8 in. by 15 3/4 in. and 11 13/16 in. by 23 5/8 in., the 3/16-in.-thick slates offer flexibility in design. Colors include blue-black, gray-green, rose-gray, slate red, and British green. 50-year limited warranty. Eternit, Inc., Blandon, Pa.



158. Vinyl-clapboard siding
The Aries line of matte-finish vinyl siding introduces a traditional 3-in. clapboard panel that features a post-form profile with a nominal wall thickness of .044. Components from trim pieces to soffit and accessories are available in 10 shades that duplicate centuries-old milk paints. BPCO Inc., Vinyl Division, Acton, Ont.*



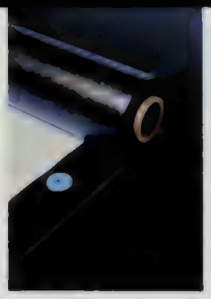
159. Insulation base coat
The I-C Gold Base Coat, applied in a thick self-gauging coat without control joints, combines design flexibility and simplicity of jointless polymer-based systems with benefits of mechanical attachment and extruded polystyrene insulation board. Said to be ideal for old substrates with unbondable surfaces. Parex Incorporated, Redan, Ga.



160. Precast building panels
Slenderwall provides flexible, exterior-wall precast building systems engineered and plant-built to exacting requirements. The concrete/steel stud panels consist of 1 1/2- to 2 1/2-in. thick concrete and from 4- to 8-in. deep steel studs. Finishes include brick, quartz, granite, and limestone. Smith-Midland Corporation, Midland, Va.*



161. Bitumen roofing membrane
SBS Premium FR is a ceramic-granule-surface, SBS rubber modified-bitumen roofing membrane reinforced with a 250 gm/sq m nonwoven polyester mat. Ceramic granule embedment during manufacture reduces membrane degradation from ultraviolet radiation and heat. Firestone Building Products Co., Carmel, Ind.



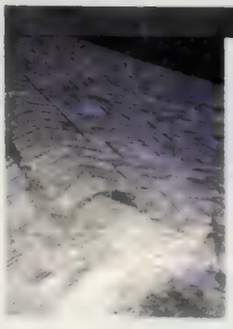
162. Heat-weld rubber roofing
Hi-Tuff/EP is the first black, scrim-reinforced, hot-air welded, single-ply roofing membrane based on Himont's ethylene propylene rubber. Available in 76.5-in.-wide rolls. Can be used as a mechanically attached, fully ballasted, or vented roofing system on both new and retrofit installations. JPS Elastomerics Corp., Northampton, Mass.*



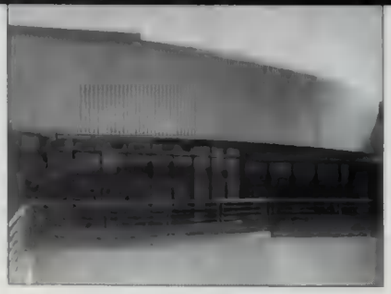
163. Plastic coping system
The EP Coping System is a fully adjustable plastic coping cap with an FM I-90 rating. Features one-step installation of roof parapet walls. Can be adjusted to fit parapet walls from 7- to 18-in. by cutting to size and snapping in place. Extruded from Geon vinyl. Southern Aluminum Finishing Co., Sanford, N.C.



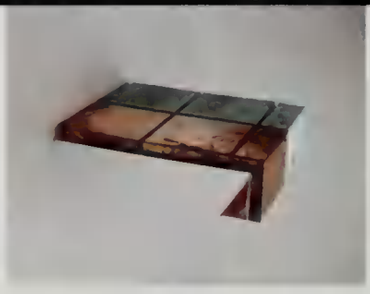
164. Insulation and finish system
The USG Exterior Insulation and Finish System includes exterior finishes, basecoats, reinforcing meshes, insulation board, and adhesives. Creates a variety of textured patterns to contrast or complement glass and other exterior materials. Available in standard colors and stone finishes. United States Gypsum Co., Chicago.*



165. Ridge vent
The [illegible] ridge vent [illegible] in a 4-ft by 4-ft [illegible] design [illegible] weather [illegible] seams [illegible] foot [illegible] gray [illegible] Peoria [illegible]



166. Metal wall panels
Squareline profiled metal wall panels, available in a 2- or 5-in. bold vertical [illegible] design, offer a concealed fas[illegible] system. Available in standard [illegible] and 1 1/2-in. depth in 24-[illegible] bed or aluminum. Can [illegible] used to create exteri[illegible] fascias on all types [illegible] Industries, Inc.,



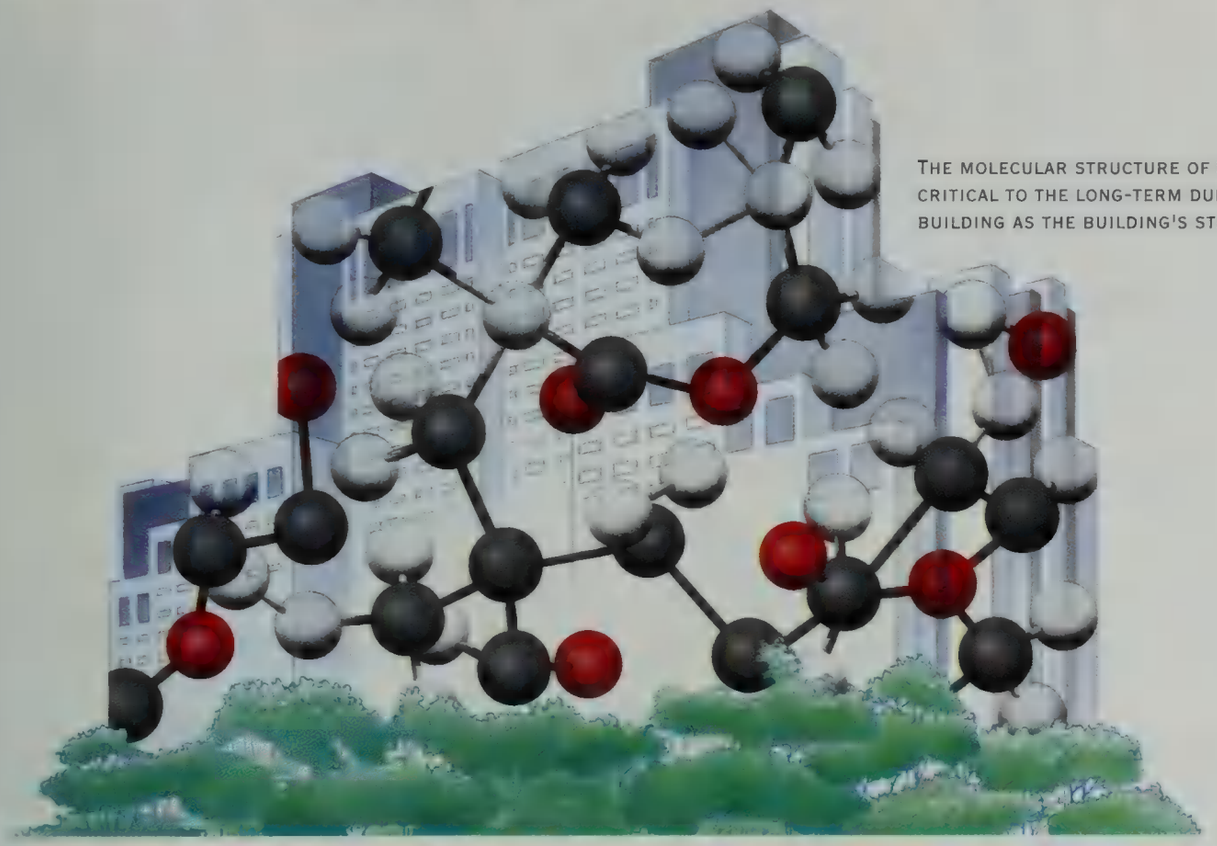
167. Copper-plate panel system
Available in 16-oz. architectural-grade copper, the Series 3000 plate panel is a caulked-joint 1/8-in. wall system consisting of custom-formed panels mounted to the structure with staggered clip angles. This series offers design latitude in flat, curved, bent, and compound shapes. Copper Sales, Inc., Minneapolis.



168. Seamless vinyl siding
Symmetry is the first seamless-style vinyl siding that virtually eliminates seams and overlaps associated with conventional siding products. Available in 40-ft panel lengths, the siding has an exclusive slide-on clip installation system. Features a smooth, low-gloss finish resembling freshly painted cedar in five colors. Wolverine Technologies, Livonia, Mich.

* *Product Data on CAD disk*

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"THE HARDER THE POLYMER IN YOUR EIFS FINISH COAT, THE MORE DIRT RESISTANT IT WILL BE." THAT'S WHAT SOME EIFS COMPANIES TELL YOU. BUT WHAT THEY DON'T TELL YOU IS THAT VERY HARD POLYMERS ARE BRITTLE AND WITH AGE, SPALL AND CRACK. CRACKING MEANS WATER CAN PERMEATE THE EIFS. AND WE ALL KNOW WHAT THAT MEANS.

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SCHOOL SYSTEM USA REPORT CARD

SUBJECT:	Standing Seam Metal Roofing Systems
MANUFACTURER:	MBCI
YEAR:	1993-1994
LIFE CYCLE COSTS	A+ Superior
Expected Life	More than 20 years
Maintenance	Minimal
Watertight	Yes
CURB APPEAL	A+ Very High
Color choices	35 standard, unlimited custom
Aesthetics	Dramatic updating with retrofit
LONG-TERM SAVINGS	A+ Significant Savings
Energy	Heat reflection + insulation = Energy Savings
Insurance	UL-90 Rating = Lower Insurance Rates
MBCI ATTITUDE	A+ Outstanding
Service	Exceeds customer expectations
Knowledge	Understands sophisticated buildings
Product Line	Most extensive in the industry

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Omaha 402/451-7000

Memphis, Tennessee Plant Opening January 1994
Circle 1017 on inquiry card








Denver Departure.



Architect: C.W. Fentress J.H. Brandurn and Associates. Engineer: Severud Associates Consulting Engineers P.C. Photographer: Robert Reck.

irdair's Tensioned Membrane Sends Airport Design in New Directions

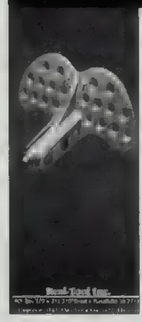
air's tensioned membrane technology makes permanent translucent structures of any size or configuration possible. enver's spectacular New International Airport, architects have used tensioned membrane to cover the 180 ft. wide, ft. long "Great Hall", creating an exciting architectural landscape on the horizon. Two 40 ft. wide exterior canopies d passengers from the elements by flanking the entire length of the 900 ft. structure.

t Birdair, we continue to be energized by original and creative thinking – about new structural concepts, applica-, materials; about how we can support architects in rethinking the very nature of buildings and bending the lines h will delineate the future of architecture. For complete illustrative and technical information on how you can bring flying excitement to your next project, call or write:

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Circle 1018 on inquiry card



169. Standing-seam snow guard
This non-penetrating snow guard will not compromise the integrity or finish of metal roofs. Traditional in appearance, it clamps to standing seams without restricting thermal movment. The product is available in cast aluminum and bronze; custom colors can be ordered to match prefinished metals. Real-Tool, Inc., Purcellville, Va.



170. Fire-rated roof decking
Flame Break is a new roof decking made of performance-rated plywood or oriented-strand board bonded with a layer of gypsum board that has imbedded glass-mat faces and a silicone-treated core. As a result, the product combines dimensional stability with low flame spread and moisture protection. Georgia-Pacific, Atlanta.



171. Vinyl siding
Vinyl siding, soffit systems, accessories, and finishing trim from CertainTeed are low-maintenance products made from the company's own PVC resin. A comprehensive siding-color system offers a wide selection, and all products are made with solid color throughout. CertainTeed Corp., Vinyl Building Products Group, Valley Forge, Pa.



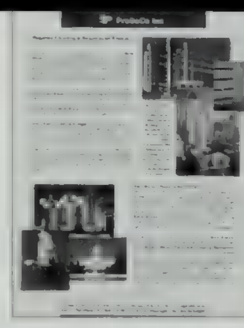
172. Foam insulation
Styrofoam brand rigid insulation is an extruded polystyrene foam that can be used in residential and commercial walls and slabs. Its dense, closed-cell structure gives the product excellent moisture resistance, thermal performance, and compressive strength. Made with HCFC blowing agents, it is CFC-free. The Dow Chemical Co., Midland, Mich.



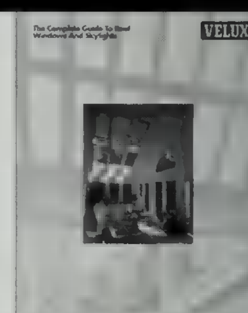
173. Cement siding
Hardiplank and Hardipanel are lap- and vertical-fiber cement siding products that won't rot, are noncombustible, and immune to water damage, salt spray, termites, and, when properly installed, hurricane-force winds. Textures include smooth, wood-grain, and rough-sawn. James Hardie Building Products, Inc., Fontana, Calif.



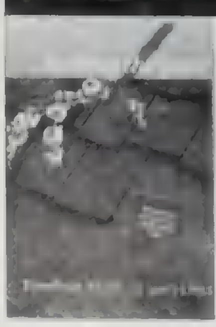
174. Metal-roof panel
Met-Tile is a metal-roofing panel that imitates the look of tile. At less than 125 lb per square, the product is about one-tenth the weight of most clay tiles. Panels run up to 20 feet in length and provide insulating air space that improves energy efficiency. Vertical application without horizontal laps helps wind resistance. Met-Tile, Inc., Ontario, Calif.



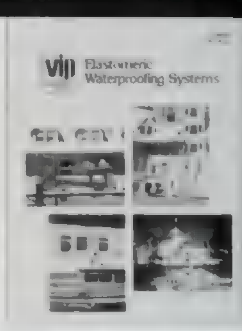
175. Protective treatments
ProSoCo water repellents penetrate deeply to provide long-term protection against damage and staining from water intrusion. Sure Klean Weather Seal products use silane and siloxane technologies to protect vertical masonry surfaces, while Stand Off items protect tiles, pavers, and stone. ProSoCo, Inc., Kansas City, Kansas.*



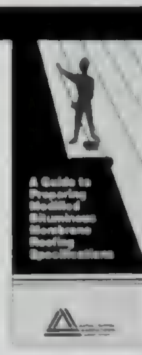
176. Roof windows and skylights
The Complete Guide to Roof Windows and Skylights presents design ideas and applications for the Velux line of products. The guide includes information on installation, choosing the proper models, and finishing techniques, and introduces the new Electric Venetian Blind and Flat Roof Curb. Velux-America, Inc., Greenwood, S. C.*



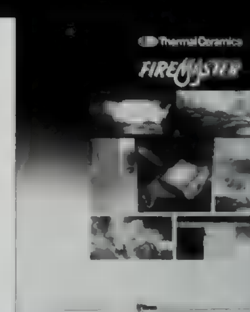
177. Fiber-cement roofing
[illegible] is a lightweight fiber-[illegible] buildings. [illegible]



178. Elastomeric waterproofing
A new brochure from the VIP Division of the Flood Co. provides details on selecting the proper elastomeric waterproofing system. Products offered by VIP combine structural flex with elongation properties to compensate for thermal expansion and contraction, shrinkage, and movement cracks. VIP Division of the Flood Co., Hudson, Ohio.



179. Modified-bitumen roofing
Published by the Asphalt Roofing Manufacturers Association, this guide helps direct readers to materials that can shed new light on the proper design, application, and specification of asphalt roofing enhanced with agents such as polypropylene and synthetic rubber. Asphalt Roofing Manufacturers Association, Rockville, Md.



180. Fire protection
FireMaster fire-protection products are made from inorganic and noncombustible materials and range from wraps, blankets, and boards to putties and mastics. Applications include cable tray/conduit fire protection, construction/safing joint protection, and liners for fire-training facilities. Thermal Ceramics, Augusta, Ga.

* *Product Data on CAD dis*

For more information, write item numbers on Reader Service Cards.



181. Metal-roof retrofit
A 36-page design manual explains the NuRoof framing system, which supplies slope and a structural base for roofing over a leaking flat roof. Design flexibility is stressed, with a choice of slopes, hips, valleys, gable endwalls, vertical and trapezoidal standing-seam panels. Metal components come in a selection of colors. MBCI, Houston.



182. Cladding materials
A series of architectural case studies highlight in-use design, cost, and installation benefits claimed for Reynobond fire-retardant aluminum composite material. Design solutions include ability to match straight runs with multi-step radius corners. Includes as-built photos and detail drawings. Reynolds Metals Co., Richmond, Va.



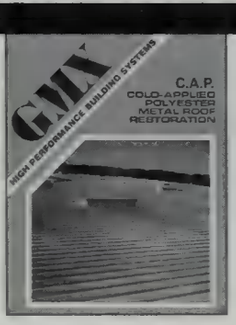
183. Cedar siding
A 20-page reference, Specifying Cedar Siding, describes and illustrates (with color photos and line drawings) the bevel, tongue-and-groove, channel, and board-and-batten siding products produced by member mills. Includes grade and coverage data, and shows cedar on completed projects. Western Red Cedar Lumber Association, Vancouver, B. C.



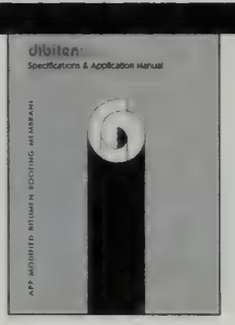
184. Fire stops for fiber optics
An eight-page brochure describes fire-stop protection materials designed for fiber-optic cables, including those with PVC and PE jackets and inner ducts. Penetrations and inner duct openings are sealed with fire-resistant materials that expand under heat to seal out flames, smoke, toxic fumes, and water. 3M, Fire Protection, St. Paul, Minn.



185. Roofing problem solver
One of a series, Bringing Airport Roofing into the '90s outlines the high-performance, cost-effective advantages attributed to thermoplastic single-ply materials on very large, very visible, projects such as the 1,350,000-sq-ft Denver International Airport. TROCAL Roofing Systems, Piscataway, N. J.



186. Cold-applied roofing
The C. A. Pcold-applied polyester—system is said to provide cost-effective metal-roof restoration and preservation, sealing, rustproofing, and to improve the appearance of existing metal roofs. The monolithic surface resists UV and reduces under-roof temperatures. GMX, Inc., Cleveland.*



187. APP-modified bitumen
A complete, updated specifications and design manual contains 150 pages on the appropriate selection and detailing of all Dibiten USA roofing products, including waterproofing materials. Excellent layout, black and white photos, and two-color details. Dibiten USA, South Gate, Calif.



188. Visible roof project
An illustrated case history spells out the reasons Paul Steelman Architects specified Bondcote fabric-reinforced NBP membrane for the flat roofs of the enormous MGM Grand Theme Park in Las Vegas: superior UV resistance, no loss of color or thickness over time, and non-curing installation flexibility. BondCote Corp., LaGrange, Ga.*



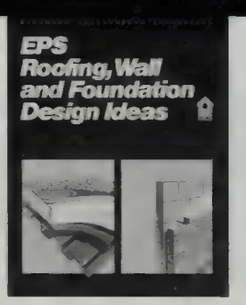
189. Curveable cladding
A capabilities brochure covering the long-term (20 year) in-place performance history of Alucobond Material describes the cladding as an economical alternative to brick, marble, granite, and pre-cast materials. New less-expensive attachment systems and new color options are illustrated. A-T-I, Benton, Ky.



190. Sprayed fireproofing
Cafco Deck-Shield I is said to be an abrasion-resistant fireproofing for exposed steel surfaces. Drying to a smooth surface, it can withstand the day-to-day abuse found in mechanical rooms, parking garages, and elevator shafts. Offers FR ratings of up to four hours, and a noise-reduction coefficient of 0.65. Isolatek International, Stanhope, N. J.*

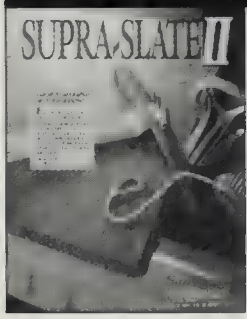


191. SBS-modified roll roofing
A 12-page architectural brochure, illustrated in this maker's strong graphics style, includes "everything you need to know" about Awaplan SBS-modified polyester roll roofing. Interactive software assists in generating CSI-format specifications, drawings, and construction details. TAMKO Asphalt Products, Joplin, Mo.*

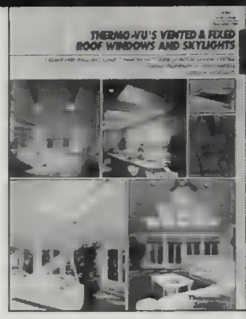


192. Assured R values
An overview of expanded polystyrene insulation gives product characteristics and illustrates specific uses—on wood or metal decks, sub-slab insulation, exterior sheathing—with line drawings. Explains the long-term, consistent thermal performance backed by the Accu-R quality-assurance program. Society of the Plastics Industry, Tampa.

* *Product Data on CAD disk*



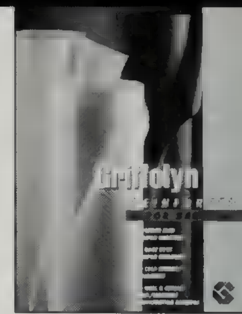
193. Fiber-cement slate
Said to be the only manufactured slate with an unpainted, quarried-slate finish, SupraSlate II comes in Bangor black, Pennsylvania gray, Vermont green, Rutland red, and Granville purple. Data sheet illustrates all colors and edge treatment; lists freeze-thaw, UL, and other test data. Supradur, Rye, N. Y.



194. Skylights
This maker's complete line of skylights and roof windows is covered in a new, full-color architectural specification catalog. Details, installation suggestions, and dimensional data given for all models; also highlights accessories such as pleated shades, motorization, and telescoping poles. Thermo-Vu Sunlite Industries, Edgewood, N. Y.



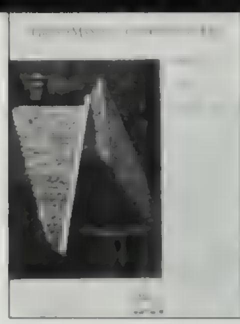
195. Intumescent firestops
Silicone Pensil firestop systems are said to be designed to simplify specification, installation, and inspection procedures in a number of applications, including three-hour, UL-classified floor and wall voids and penetrations. Technical guide details use of Pensil sealants, foams, and intumescent putty. GE Silicones, Waterford, N. Y.



196. Multi-ply vapor barriers
A laminate of high-density polyethylene and nylon yarn, Griffolyn sheets perform as vapor barriers under slabs and roof decks and in cold-storage facilities, and reduce heat transfer through wall and ceilings to lower interior humidity and prevent in-wall condensation. Puncture-resistant; tape sealable. Griffolyn, Reef Industries, Inc., Houston.



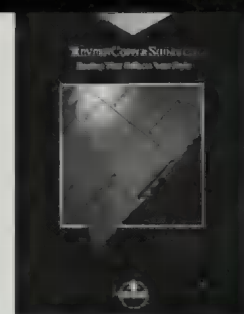
197. EIFS restoration
A four-page brochure describes Dryvit's new Care and Restoration of Exteriors (C.A.R.E.) program designed for buildings clad with EIFS. It suggests fast and economical options for those buildings that could use new design elements, protective coatings, renewed color, or other preventative maintenance. Dryvit Systems, Inc., West Warwick, R. I.*



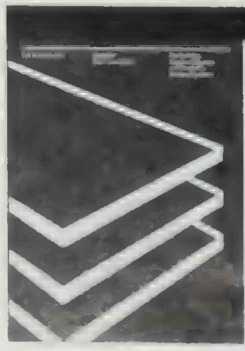
198. Customized shingle roofs
Residential-roofing guide illustrates some custom roof designs possible with combination applications of Grand Manor and Carriage House slate- and shake-look asphalt shingles. Old-time patterns include mid-roof fish-scale and beaver-tail patterns, zigzags, and graphics. CertainTeed Corp., Valley Forge, Pa.



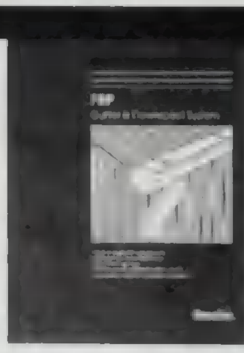
199. Panelized cedar shingles
Portfolio of light-commercial and residential projects explains how the panel concept makes the best, most economical, and least wasteful use of natural cedar shingles. An interleaved fiberglass-reinforced alphaltic moisture barrier and interlocking end joints improve sidings' performance and appearance. Cedar Valley Shingle Systems, Hollister, Calif.



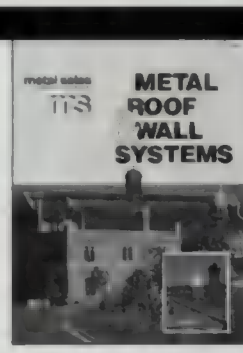
200. Copper-roofing system
Revere, trying to reduce the perceived complexity of roofing with copper and lower and stabilize material costs, developed a system of solid-copper shingle panels and concealed joint pans. A four-page brochure highlights system components and ease of installation. Revere Copper Products, Inc., Rome, N. Y.



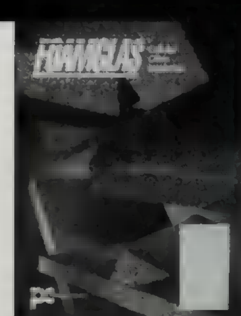
201. Roofing insulations
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202. FRP rain gutters
The Resolite gutter and downspout system resists attack from corrosive material washed off roof surfaces, even in severe building environments such as smelters or pulp mills. Molded gutter and downspout sections snap together; gray, beige, or white colors standard. Custom colors [illegible] orders. Resolite, A United [illegible] Co., Zelienople, Pa.



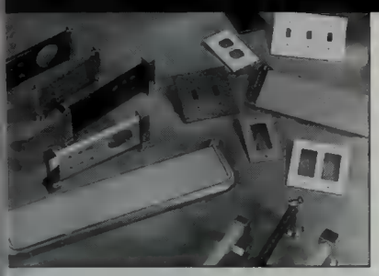
203. Metal roof systems
Building components—siding, standing-seam and architectural roof panels—are available in 17 different profiles, several gauge and pretreatment options, and nine standard colors. Design catalog from this 30-year-old firm illustrates them all, and lists manufacturing locations. Metal Sales Manufacturing Corp., Louisville, Ky.



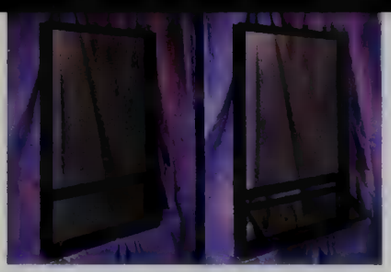
204. Cellular-glass insulation
Its all-glass, closed-cell composition is said to make Foamglas the only insulation available that is impermeable to moisture in liquid or vapor form. A 20-page catalog documents the very-long-term, consistent performance claimed for the non-combustible board product. Pittsburgh Corning Corp., Pittsburgh.

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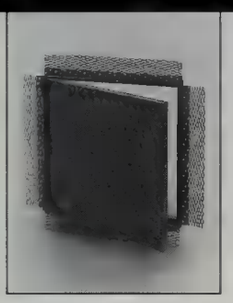
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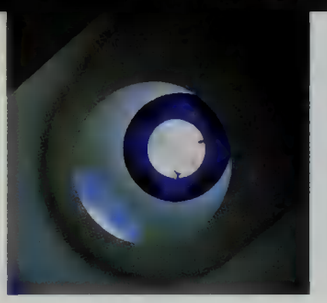
.17. Bath accessories
he ARIA line of towel bars, soap ishes, shelves, switch plates, robe ooks, paper dispensers, toothbrush olders, and shower caddies is made Corian with solid-brass trim and einforcement. There is a wide selec- on of finishes. The company also akes Corian shower bases. Colonial ronze Co., Torrington, Conn.



218. Thin-trim window vents
Billed as a "concealed vent," the operable exterior-opening lower panel has minimal visible trim. The metal GLASSvent opens on four-bar hinges, has sturdy locking hardware, and is compatible with thermal-framing lines. Panels pass certified tests for water and air penetration, as well as structure and U value. Kawneer Co., Norcross, Ga.



219. Access panels
New fire-rated models from this manufacturer accommodate edge conditions for two different wall finishes. The FDPW has plaster-stop flanges and the FDWB has a drywall bead. Model CP (photo) is a recessed panel with metal lath for plaster ceilings. J. L. Industries, Bloomington, Minn.



220. Art-glass panels
Renato Toso and Noti Massari have created two glass designs. One relies on the colorless transparency of the material and contains designs "traced in air" (photo). The other is Murano glass patterned with red, blue, and gray "ancient signs." Both are said to be suitable for skylights and doors, and wood or metal frames. Lecos USA, Inc., Edison, N. J.



21. Swiveling TV bracket
eavy-duty performance in relation a modest size are said to be major atures. The load capacity is 180 lb. e extension is 14 in. Bracket holds up to 32 in. diagonal measure. A -in. mounting plate and unit- pport brackets are designed to minate rocking. Comes in black or c-plate finish. Accuride, Santa Fe rings, Calif.



222. Thermal-glass spacer
Said to be more effective at sealing out moisture and air penetration than conventional aluminum and carbon-steel spacers, the SST model is made of laser-welded light-gauge stainless steel to resist corrosion. The spacer is corrugated for structural performance and novel appearance, and is lap-welded for rigidity. Allmetal, Inc. Itasca, Ill.



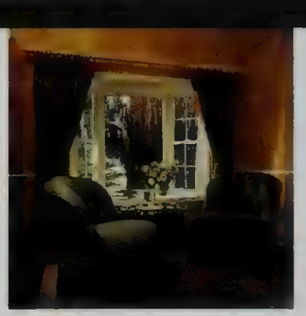
223. Seven-ply FR door
A three-ply "skin" has a 1/50-in. face veneer over a particleboard core, and is said to accept stains uniformly. Factory staining is available. Industrial-grade hardboard is another option. The SP model has a 20-minute fire rating. Weyerhauser Co., Marshfield, Wis.



224. Insulated divided lights
Each light is a separate double-glazed unit in this manufacturer's Williamsburg line. Advantages over lines in which wood dividers are attached to the face of one large insulated-glass unit are said to be: reduced chance of stress and lower replacement costs. Dividers are 7/8-in. wide. Weather Shield, Inc., Medford, Wis.*



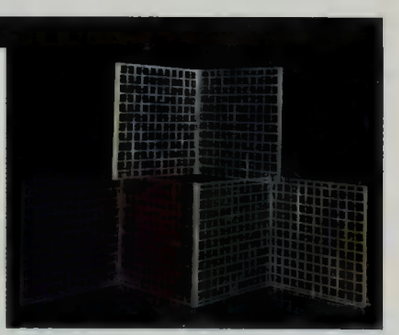
5. Folding glazed units
ering a 92-percent free opening in led-back position, this system can used for doors, windows, and full ls. Flush-bolt locking and screens over the full opening are included. ss is insulated, tempered, and ed bronze. Aluminum frames are ilable in white or bronze finish and tandard sizes. Skytech Systems, omsburg, Pa.



226. Vinyl windows
Intended for domestic use, these solid-vinyl window and door units are said to never rot, peel, crack, rust, scratch, dent, or stain. Configurations include standard bay windows, small bay windows for use in such locations as over kitchen sinks, tilt-in windows, and sliding doors. Louisiana-Pacific Corp., Portland, Ore.



227. Metal-roof skylights
Insulated vacuum-formed domes are designed to be installed between standing-seam panels 16 in. wide. The company's installers cut panels to accept 11- by 48-in. Sealbrite light-transmitting units, which are factory-sealed to the metal; unit is supplied as a roofing panel. Sequentia, Strongsville, Ohio.



228. Colored wire glass
"Georgian" colored laminated clear-float wire safety glass is offered in red, blue, white, black, brown, green, and yellow. Wire is electronically welded mild steel. Thickness is 1/4-in. Standard size is 62-in. by 106 19/64-in. Other sizes available. FDI Glass Corp., Fairfax, Va.

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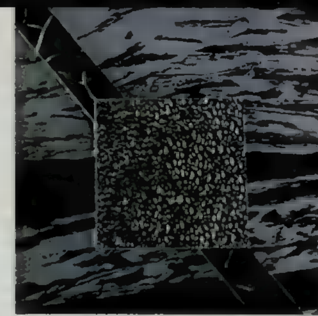
229. Key-in-lever lockset
The Survivor, a grade 1 cylindrical lockset with an exclusive clutch-action locking mechanism, reduces damage when locked because non-rigid outside lever turns without opening latch. Automatically adjustable for door thicknesses from 1 5/8- to 1 7/8-in. without use of spacer plates. Marks Hardware, Inc., Amityville,



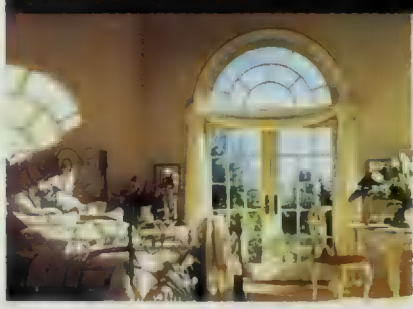
230. Non-reflecting glass
Amiran, the first non-reflective window glass, was developed through a special dipping process that coats both sides of the glass with a thin transparent skin. Reduces reflections from 8 percent to less than 1 percent, and cuts lighting costs and fading. Suitable for showrooms, shops, and restaurants. Schott Corp., Yonkers, N. Y.



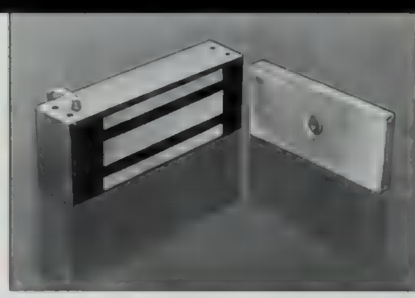
231. Starck lever handle
From FSB in Germany, the PSI Series polished-lever door handle designed by Philippe Starck echoes the shape of its circular, matte-silver backplate. Asymmetric forms indicate what the designs do and how. It can be furnished with passage, privacy, and entry lock and latch sets. FSB for The Ironmonger, Inc., Chicago.



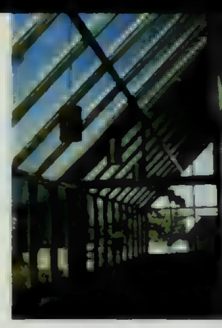
232. Laminated glass
Colored- or clear-textured glass laminated on large tempered or safety-glass surfaces produces a cost-effective way of creating shatterproof architectural glass with a full range of patterns and textures. Can be applied to any thickness of float glass. Palmer-Pohlmann Studio, Inc., Atlanta.



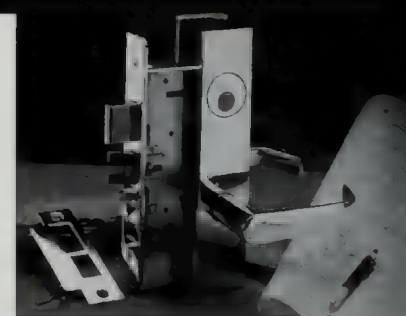
233. Warp-resistant French door
A new French door can be hinged in a wide variety of configurations. Wood stile has innovative, fiber-reinforced core that is said to eliminate warpage and be three times as strong as wood. Does not react to moisture or temperature change. Meets NWWDA Grade 60 Commercial performance standards. Marvin Windows & Doors, Warroad, Minn.*



234. Electromagnetic lock
The Adams Rite magnet Series 1200, a high-security lock with 1,200 lb. of holding force, has options that include face-mounting for inswing doors, monitoring, surface wiring, and indicator lights. Internal electronic circuits designed to provide instant release and avoid residual magnetism. Adams Rite Manufacturing Co., City of Industry, Calif.



235. Solar-control glass
California Series laminated glass consists of a thin wavelength-selective Heat Mirror XIR coated film sandwiched between PVB and glass. Reduces solar load by 30 to 40 percent while reflecting heat outside of building. Offers high light transmission and low visible reflectivity. Wide palette of colors. Southwall Technologies, Inc., Palo Alto, Calif.



236. Mortise locksets
The ML2200 and ML2200HS Series, two newly configured mortise locksets, feature chrome-plated lockcases, stainless-steel anti-friction latch inserts, and stainless-steel stops. Many cylinder options offered including master ring. Institution- and classroom-function deadlocks available. Corbin Russwin Architectural Hardware, Berlin, Conn.



237. Curved glass
[illegible] curved and angle bent [illegible] fabricated by manu- [illegible] designed or [illegible] tempered glass and [illegible] Large [illegible]



238. Thermal glass
InSol-Edge technology increases inside-glass temperature along window edges and overall insulating performance. Combines the strength of two galvanized-steel spacers separated by low-density, moisture-resistant foam. Flow of cold and heat is practically eliminated and condensation significantly reduced. Hurd Millwork Co., Inc., Medford, Wis.*



239. Gliding garage door
The Quiet-Glide raised-panel, 2-in. sectional garage door features CFC-free molded polystyrene panels to provide extra-quiet operation. Polystyrene backer and dovetail design add strength and durability. Available with windows and trim and in all sizes except 12- and 14-ft widths. Stanley Door Systems, Troy, Mich.



240. Lever lock
Schlage Lock Company's ADA-compliant S-Series Saturn keyed lever is a light- to medium-duty commercial lock. Used in lower trafficked commercial areas such as interior offices, medical centers, stores/shops, and bathrooms, and heavy-duty residential and multifamily houses. Schlage Lock Co., San Francisco.

* *Product Data on CAD dis*

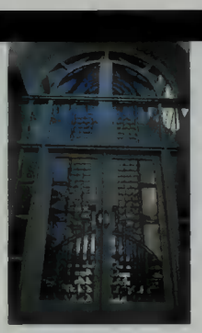
For more information, write item numbers on Reader Service Cards.



241. Residential entrance
Suggested as appropriate for several architectural home styles, the Venetia fir or hemlock door features decorative lights with beveled glass set like mosaic in brass caming. Doors come in 3-ft and 42-in. widths, up to 8-ft high; matching sidelights are an option. Simpson Door Co., McCleary, Wash.



242. Rated veneered grillwork
Fire doors with veneer-wrapped grills now qualify for 20- through 90-minute labels, allowing architects to specify a French door style or a divided-light insert while meeting occupancy-code requirements. Door bead and grillwork can be provided in all available foreign and domestic veneers. Eggers Industries, Appleton, Wis.



243. Architectural glass
Truly monumental installations (entrance pictured is 10- by 17-ft) can be created with blown, cast, beveled, and stained glass fabricated in wood and/or metal structures. Custom glass panels become site-specific skylights, domes, window walls, and entries. Jurs Architectural Glass, Oakland, Calif.



244. Vinyl-framed windows
A new product from a maker of commercial and residential aluminum windows, Aurora windows and patio doors are made with multi-chambered vinyl extrusions in bright white or almond. UV-stabilized vinyl is said to offer superior energy efficiency and long-term, low-maintenance performance. Acorn Window Systems, Inc., Detroit.



245. French door
The Marquis insulated entrance features thinner munts and bars that coordinate with popular window-glazing styles, and wider, 4 3/4-in. tiles that will accept most decorative hardware and locksets. Door comes in pine, oak, and fir, as well as one-, 10-, and 15-light designs. Nicolai Doors, Oshkosh, Wis.



246. ICU sliders
Described as easy to install and maintain, RotoSwing manual (non-automatic) sliding and swing doors come in two-, three-, and four-leaf models that offer immediate access to patients in intensive- and critical-care hospital units. Can be installed without a floor track; wide range of finish options. RotoSwing Division, EFCO Corp., Monett, Mo.*



247. Clad-wood French door
Made with an extruded-aluminum exterior, new French doors have natural, vertical-grain Douglas fir on the inside. Metal may be finished in white, sand, or dark bronze; wood interior surfaces may be stained or painted. Line offers several grid, hardware, and energy-saving glazing options. Milgard Manufacturing, Inc., Tacoma, Wash.*



248. Mullionless corner window
The CornerView unit, made of clear pine on the interior and with an aluminum exterior in any standard or custom EnduraClad color, miters two lights of clear glass to create a totally unimpeded view. Units may be stacked two high; three sizes, up to 5-ft 5-in. high. Pella Corporation, Pella, Iowa.*



249. Tamper-resistant closer
The 83-series surface closers provide vandal- and tamper-resistance for openings that must meet accessibility codes yet be secure against deliberate damage. An adjustable spring-power range lets the closer meet both interior and exterior-door opening-force requirements. The Dorma Group, Adamstown, Pa.



250. Art Glass panels
A decorative option for new or existing Andersen windows, maple-trimmed Art Glass panels in over 100 shapes include elements such as clear antiqued glass, semi-privacy lights, and colorful stained glass in Art Deco, Victorian, contemporary, Tudor, and other motifs. Andersen Windows, Inc., Bayport, Minn.*



251. Panic entrance
A new concealed, vertical-rod exit device, VIP II has a slim appearance with narrow sightlines and hidden fasteners. Available for narrow-, medium-, and wide-stile entrances, the device is rated for use in schools, hospitals, and other high-traffic applications; touch bar has a non-slip linear-tread pattern. Vistawall Architectural Products, Terrell, Tex.



252. Warning surface
Metal and rubber Traction Tread modules can be secured onto a variety of walking surfaces, or embedded in concrete as illustrated, to provide detectable warnings for the visually handicapped at the top of stair runs, escalators, and other locations specified under ADA 4.29.2 criteria. Zero International, Inc., Bronx, N. Y.*

Product Data on CAD disk

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General Services Administration Building, Oakland, CA. *Architect:* Kaplan McLaughlin & Diaz. *General Contractor:* Walsh Construction Co. *Products:* Custom 5600 Curtain Wall, Series D-500 Entrance, Series 2000 Sliding Glass Doors, Custom Series 890 Equa-Vu™ and System II™ Windows.

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As the 1991 Parade of Homes approached, builders/ architects Waters & Bonner Inc. felt they had a showstopper. Naturally, windows were a critical element in their plans. So early on in the project, Keith Waters contacted Marvin Windows.

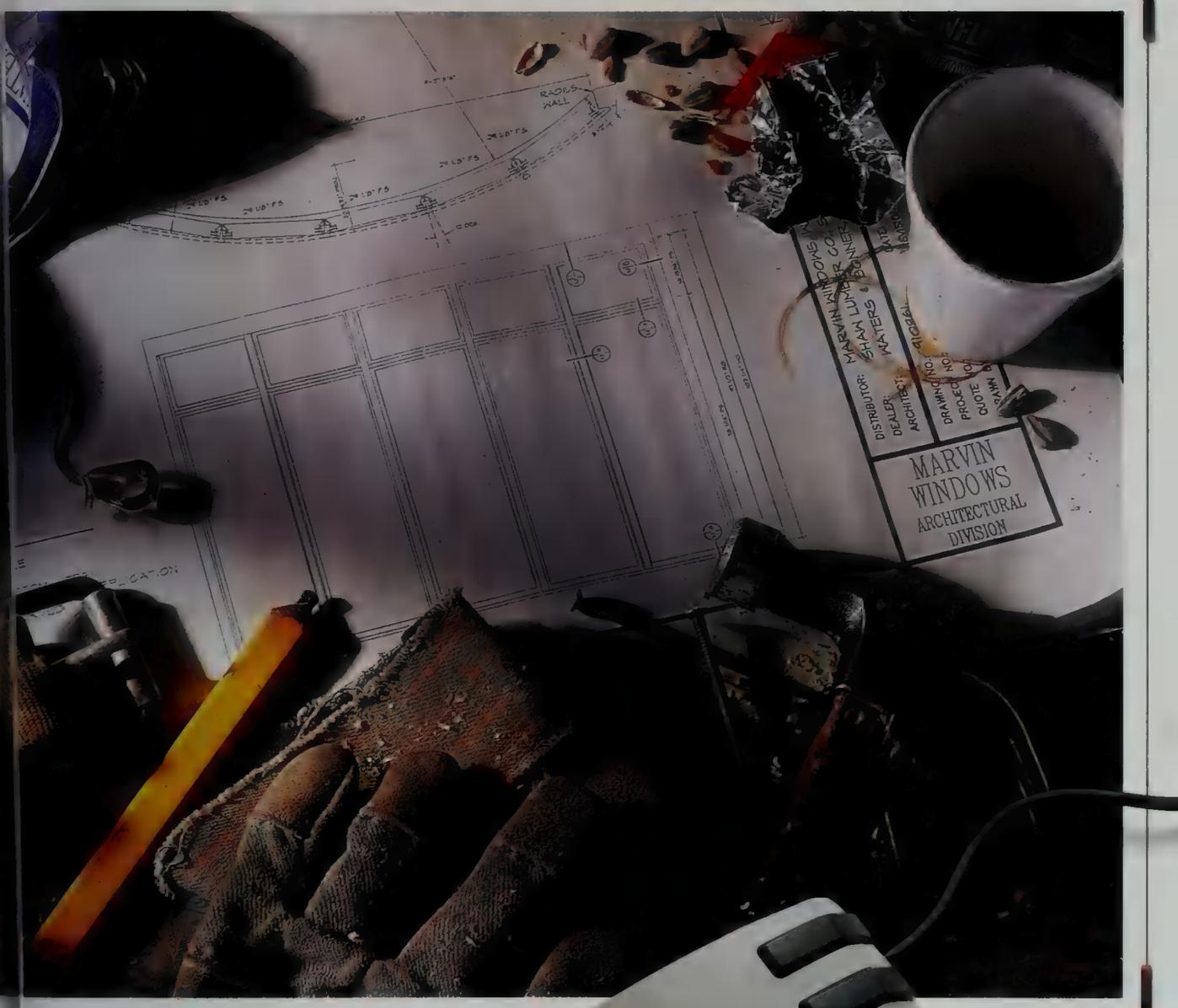
His biggest challenge was the focal point of the home: a unit made up of five 8 ft. x 2 ft. transom-topped windows, arranged in a curved subsill to form a bow. The fact that Marv could craft such a window didn't really startle Keith. Past experience had taught him otherwise. Bu he was surprised when Marvin's Architectural Department offered to draft the CAD drawings for the subsill; a gesture that saved his firm a considerable amount of time and trouble.



Yet Marvin didn't stop there. Next, they turned their attention to a soaring, 10-lite window that was also part of the plans. And by suggesting a reduction of just three inches in the overall height of this 18 ft. unit, they were able to save Waters & Bonner and the homeowner [illegible] $4,400.00.

Their prediction proved to be correct. Waters & Bonner won a regional Reggie Award for the home's

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design and construction. And we proved to Keith that when you come to Marvin, you get more than just windows.

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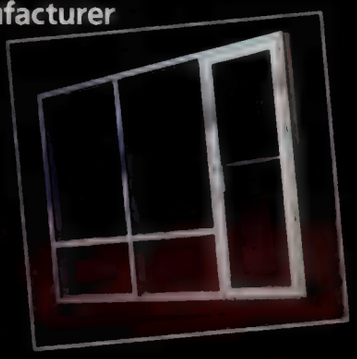
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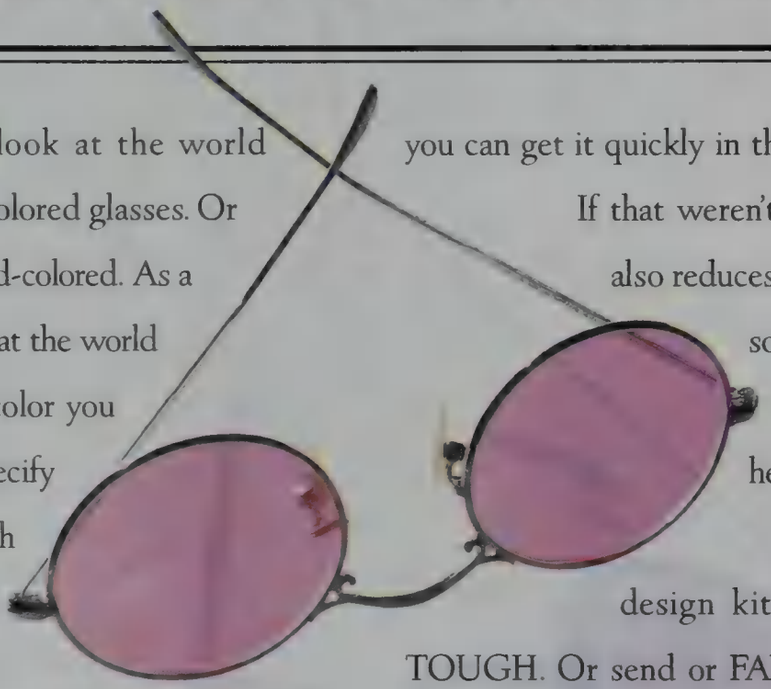
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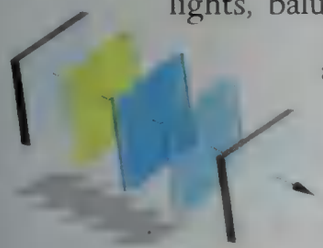
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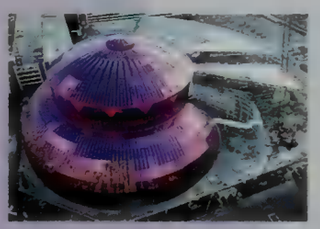
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Since the glass is laminated, it can meet virtually any building code for safety, sloped and overhead applications. It goes where ordinary glass can't.

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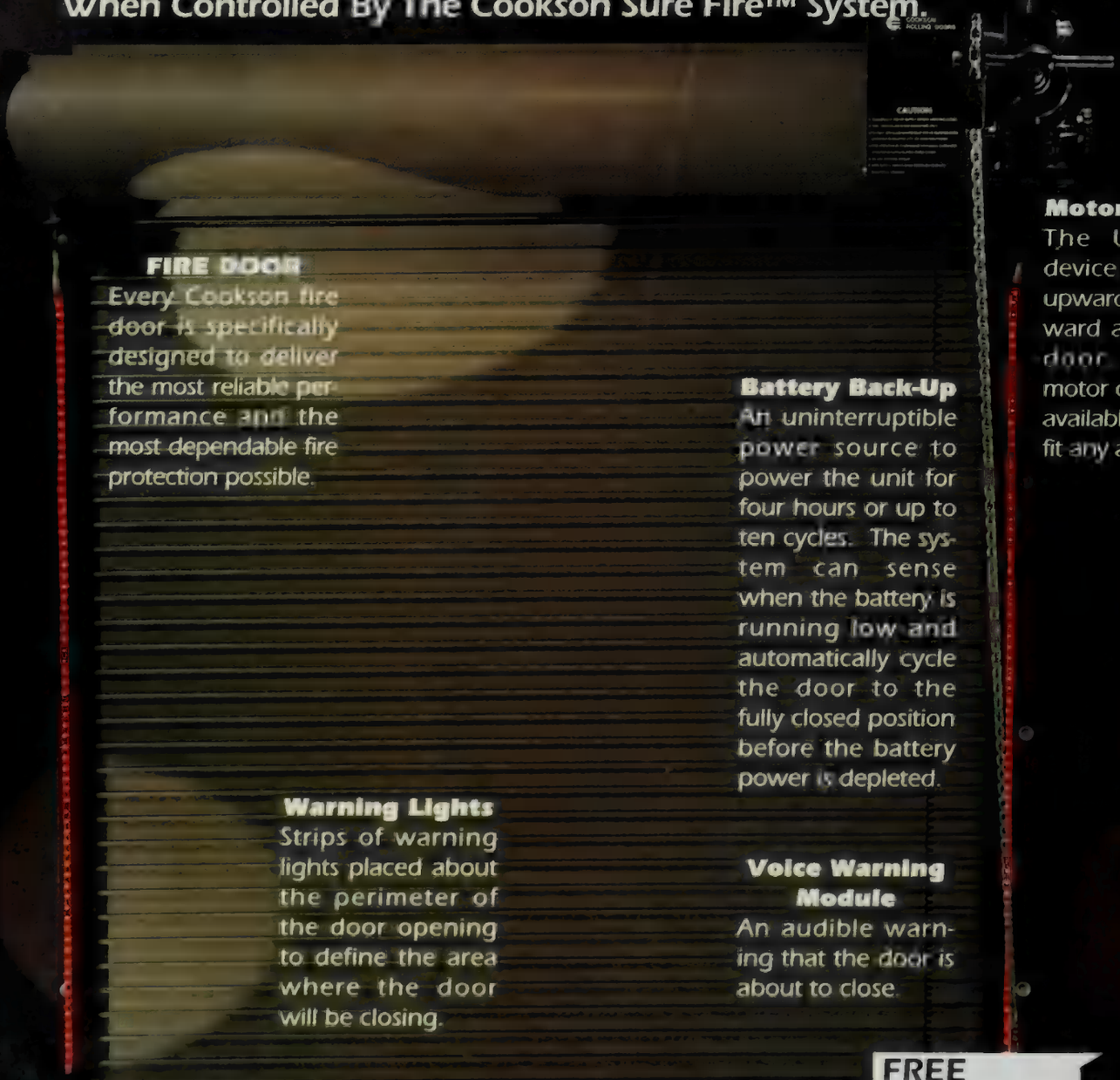
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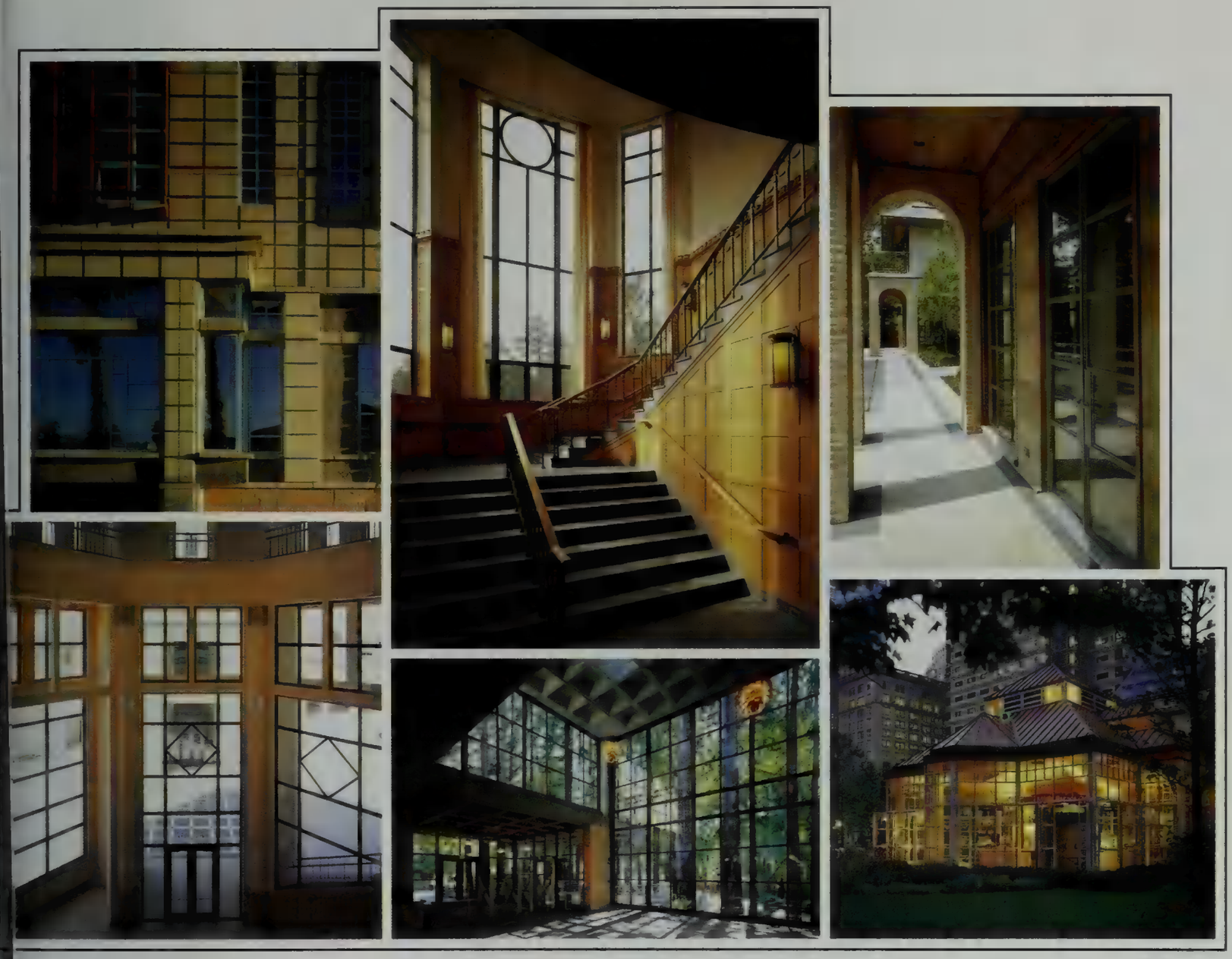
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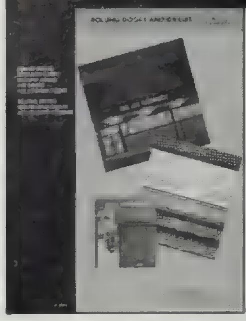
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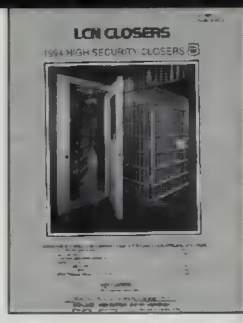
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8 • DOORS & WINDOWS Literature

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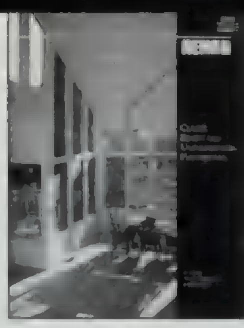
253. Protective doors
Exterior and interior rolling doors and grilles are covered in a 24-page color brochure. The galvanized-steel and aluminum doors provide security and protection from the elements. Options include fire-proofing, motorized operation, a baked-enamel finish, and automatic closing in the event of fire. Cornell Iron Works, Mountaintop, Pa.

254. Door closers
A user-friendly closer designed to reduce the force required to open a door by 75 percent is one of the products described in LCN's eight-page brochure. Other items include electrical closing devices that function in tandem with existing alarm systems. Drawings detail various construction and mounting options. LCN Closers, Princeton, Ill.

255. Window dressing
Soleil hurricane-resistant, roll-down shutters offer both automatic and manual louvering, can be lacquered to specification, and are constructed of either Burmese teak, Honduran mahogany, or aluminium. In a six-page brochure, color photos show the shutters in place. Schematic drawings and plans also provided. Soleil Shutters, Inc., Riverdale, N. Y.

256. Translucent insulating glass
A detail of the skylight in Camberly Town Centre, Surrey, opens the trilingual, 16-page brochure by Okalux. Color photos show the light-diffusing insulating glass used in both new buildings and restorations. Cross-sections detail the capillary-slab design. A chart provides data on light transmission and deflection. Schott Corp., Yonkers, N. Y.









257. Fire-resistive glass
Photos, drawings, and specs of two types of labeled glazing are included in an eight-page color booklet. Contraflam consists of a polymer gel between two sheets of glass, and can have a 90-minute glazed-wall rating. Pyroswiss is a single sheet tempered to withstand the heat of a fire. SAFTI, Div. of O'Keeffe's, Inc., San Francisco.

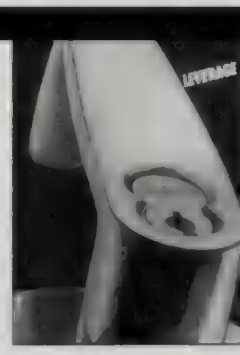
258. Windows and doors of vinyl
Schematic drawings and cross-section photos detail the construction and applications of Rehau windows and doors in an eight-page catalog. The vinyl composition is impact- and weather-resistant. Products are available in many shapes and colors. An optional roller-shutter system is designed to provide additional security. Rehau, Inc., Leesburg, Va.

259. Three-panel sliding door
The compact, microprocessor-driven motor in the Dura-Glide Telescoping Sliding Door makes small openings wider, and the synchronized panels start and stop simultaneously. Powered or manual operation. Security glazing and approach sensor are standard. Photos and additional details in a color flier. Stanley Works, Farmington, Conn.*

260. The inner life of glass
Transparent? Opaque? You decide with Priva-lite. With the flip of a switch an inner layer of Taliq Liquid Crystal Film is rearranged, making frosted glass completely see-through. Before and after photos illustrate the dual nature of Priva-lite glass. Frost-tones include neutral, bronze, and gray. St. Roch Euroglass, White Plains, N. Y.









261. Metal doors
[illegible]

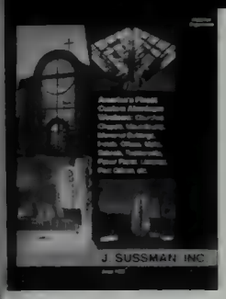
262. Architectural hardware
Color catalog offers several models of doorpulls and shower-door hinges constructed of aluminium, steel, brass, or bronze. Spherical and T-shaped pulls available, as well as standard and custom designs. Polished-metal hinges join wall to glass and glass to glass. Scale drawings accompany each product. Hiawatha, Inc., Bloomington, Minn.

263. Locks
In a four-color, four-page brochure, Arrow describes its light-, medium-, and high-traffic cylindrical locks. Steel, brass, and alloy construction. H-series and M-series feature interchangeable and custom keying. All locks ADA compliant. Photos and scaled diagrams of each 139 series. Arrow Lock, Brooklyn, N. Y.

264. Laminated glass
Globe Amerada's 16-page booklet includes photos of the laminated safety-glass installed in Chicago's new Comisky Park. Glass interlayers with polyvinyl butyral are bonded under heat in autoclaves. Performance data, construction specifications, applications, and examples in color. Globe Amerada Glass Co., Elk Grove Village, Ill.

* *Product Data on CAD disk*

For more information, write item numbers on Reader Service Cards.



265. Special windows
A 12-page capabilities brochure describes expertise developed since 1906 making complex metal-framed windows for churches and other prominent structures. Aluminum-framed windows can be produced in virtually any shape or size, including designs that match historical fenestration with pivoted ventilators. J. Sussman, Inc., Jamaica, N. Y.



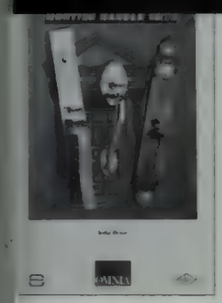
266. Metal-faced doors
A colorful brochure illustrates dozens of doors made of embossed metal over a solid-wood core. Some have dots and stripes in striking, one-of-a-kind patterns; other styles juxtapose different metals in five standard—or any custom—design. Forms+Surfaces, Inc., Santa Barbara, Calif.



267. Security glazing
Glass laminated with Saflex PVB interlayer can meet the specific levels of security and storm-resistance required by most high-value architectural applications, such as museums, embassy facilities, banks, and stores. Spec binder and CAD software reference complete design, load, and testing parameters. Monsanto Co., St. Louis.*



268. Curtain-wall design
A color portfolio illustrates recent high-rise office and institutional projects incorporating stick, butt-glazed, slope-glazed, and I-beam curtain-wall designs in custom colors and styles that integrate with the manufacturer's storefronts and entrances. EFCO Corp., Monett, Mo.*



269. Solid-brass locksets
Omnia's 12-page catalog covers six distinct hardware styles, all offered across a range of entrance, interior, and passage configurations that allow a design theme to be carried throughout the home. The 2 1/2-in. backset mortise locks are built for high traffic and security requirements. Omnia Industries, Inc., Cedar Grove, N. J.



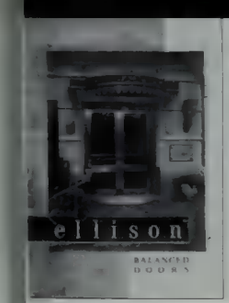
270. Custom-cladding services
When a project calls for the lustre of polished brass, the sparkle of stainless steel, or the richness of bronze, Brite Vue has the capability of cladding aluminum curtain walls, framing, or entrance systems with these metals. A catalog page describes these and other specialty metal services. Kawneer Co., Inc., Norcross, Ga.



271. Fire-rated glass
An architectural catalog provides technical, dimensional, and code information on two labeled glazing products: FireLite wireless glass-ceramic, a 60-minute vision light, and laminated FireLite Plus, an impact-resistant, safety-rated version. Both configurations fit standard fire-rated frames. Technical Glass Products, Kirkland, Wash.



272. Six-panel door system
The Nana bi-folding French-door assembly is a series of glazed panels that can span openings as wide as 18 ft 5 in., expanding indoor/outdoor space in homes, shops, and restaurants. An eight-page brochure illustrates panel, hardware, and glazing options, showing the wall as installed. Nana Windows & Doors, Inc., Mill Valley, Calif.



273. Balanced doors
It is spring pressure which slows the swing-back of a balanced door. A new 8-page catalog previews a line of balanced doors made of stainless steel, bronze, extruded aluminium, or tempered glass that are ADA-compliant without powered operation. Color photos of each door type, specs, and mechanical details included. Ellison Bronze, Falconer, N. Y.



274. Panels for access
Four types of access panels are featured in an eight-page brochure from Nystrom: fire-rated, flush, recessed, and security. Each is made from commercial-grade cold-rolled steel, but can vary in the gauge of steel used. Every panel offered in a range of sizes; custom modification available. Nystrom, Minneapolis.*



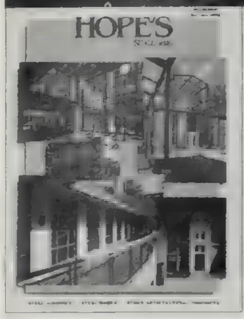
275. Architectural doors
Solid-core, hollow-core, fire-rated, and lead-lined doors, each useful in a variety of commercial and institutional applications, are drawn and described in a four-page catalog. Choice of six veneers. Beveled and squared vision panels. Custom colors and finishes available. Vancouver Door, Inc., Puyallup, Wash.



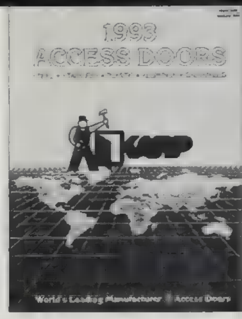
276. Picture windows
Custom windows in a variety of configurations fill an architectural brochure. Fixed and casement units and corner windows without obstructing supports are suggested for new construction and retrofit. Insulating glass, aluminum exterior cladding, and custom woods are optional. Approved by preservation groups. Pella Corp., Pella, Iowa.*

Product Data on CAD disk

For more information, write item numbers on Reader Service Cards.



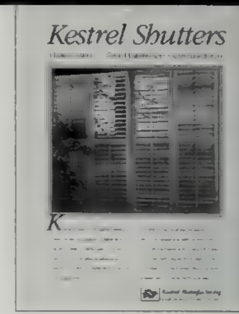
277. Steel windows
This manufacturer's 1994 catalog has 12 pages on windows and glazed-door assemblies made of hot-rolled or formed steel, illustrating architectural applications, design features, and thermal performance. Steel frames can accept large IG units without increasing sight lines. Hope's Architectural Products, Inc., Jamestown, N. Y.



278. Access doors
An 18-page catalog illustrates access doors and panels for all types of walls and ceilings. Standard configurations and mountings—recessed, flush, and surface-mounted—are offered for all occupancies; a custom-door division accommodates special metal, hinging, or wall-opening requirements. Karp Associates, Inc., Maspeth, N. Y.



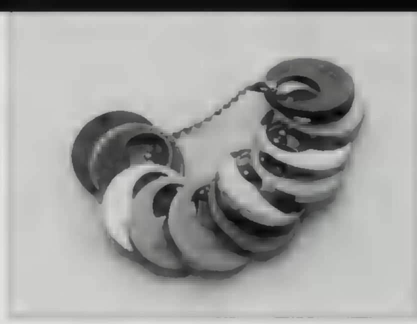
279. Automatic windows
Motorized windows can be specified as part of a total home-automation system that controls security, temperature, lighting, and appliances. Temperature, moisture, or carbon-dioxide monitors can signal windows to open or close. Ideal for physically limited users and remote openings. Marvin Windows & Doors, Warroad, Minn.*



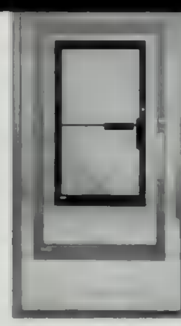
280. Shutters
Available made-to-order and in knocked-down kit form, hardwood window shutters are made using blind-pocket mortise-and-tenon construction and solid-brass fasteners and hinges. Can be specified in woods for interior or exterior, as fully operable louvers or a solid-panel style. Kestrel Manufacturing, Elverson, Pa.



281. Composite window
Orion residential windows are made of Compozit C/G, an especially heat-resistant thermoplastic developed by GE Plastics. White, tan, and dark-brown extruded frames are colorfast, thermally-efficient, and meet or exceed all pertinent AAMA and ASTM standards. Complast, Inc., Minneapolis.



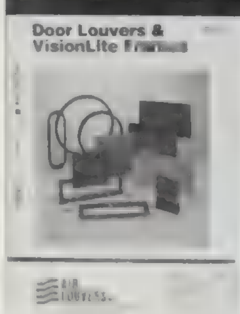
282. Hardware finishes
Available from Schlage to help architects specifying locksets and other door hardware, a finish sampling ring holds 11 standard metal-color options, such as simulated 613 bronze, bright brass, satin brass (blackened), bright, satin, and oil-rubbed bronze, and bright chrome. Schlage Lock Co., San Francisco.



283. Aluminum entrances
Standard and special-use doors and entrance systems are detailed in a 12-page architectural catalog. Included are glazed-panel and flush doors, bi-fold units for wide openings, and narrow-, medium-, and wide-stile doors that replicate the look of vintage apartment buildings. REBCO, Inc., Paterson, N. J.



284. Fire-door operators
Listed and labeled operators for sliding fire doors have a battery backup for closing and emergency egress; no closing weights, reels, cables, or disconnects are required. Brochure explains how the easy-to-test devices install on new or existing doors subject to everyday use. Saino Manufacturing Co., Memphis, Tenn.



285. Door options
[illegible]



286. Lever-handle hardware
Constructed of sanitary, warm-to-the-touch nylon over stainless-steel and brass components, HEWI door hardware, accessories, knobs, pulls, hooks, and rail systems are presented in a complete 16-page catalog. All 13 color [illegible] are illustrated. HEWI, Inc., Lancaster, Pa.



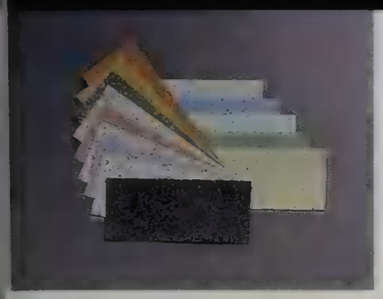
287. Architectural hardware
Apparently for the first time, all of this manufacturer's hardware—locksets, exit devices, door closers, and key systems—are presented in a single, 100-page-plus, catalog. The redesigned format highlights all handicap-code-compliant products. Corbin Russwin Architectural Hardware, Berlin, Conn.



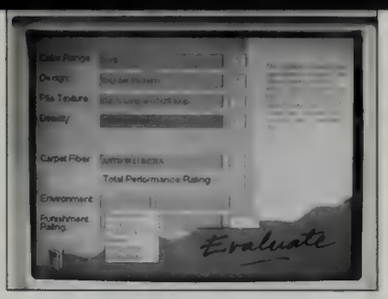
288. Heavy-duty hinges
An illustrated brochure offers detailed specification guidance for a full line of high-performance door-hinge systems, including the Unigear continuous hinge, the high-traffic Unipin hinge, and cam-lift hinges for sound-rated doors. Zero International, Bronx, N. Y.

* *Product Data on CAD disk*

For more information, write item numbers on Reader Service Cards.



289. Non-toxic wall finish
Acrylic-latex multicolor finishing system offers the durability of alkyd colors but, as a water-based decorative finish, avoids the odor and VOC emissions of oil-based products. System dries in a half hour and resists dirt, fingerprints, and mildew, according to manufacturer. California Products Corp., Cambridge, Mass.



290. Software evaluates carpets
Known as Carpet Mentor, software runs under Microsoft Windows and allows architects to develop accurate fiber-specific carpet specs that take into account carpet construction, design, and yarn type, as well as carpet's intended use, exposure, traffic, and other environmental factors. DuPont Co., Wilmington, Del.*



291. High-traffic coating
Decocoat X is designed for high-traffic exterior and interior surfaces. Product combines multicolored aggregate beads in an acrylic binder for a virtually indestructible finish, says manufacturer. Related design kit allows specifier to create custom colors. Color combinations are limited only by the 14 colored beads. Sto Industries, Atlanta.*



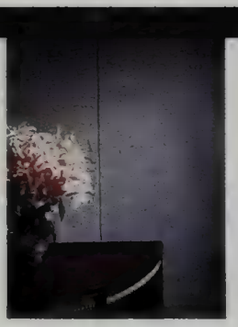
292. Tile warns sight-impaired
Warning tile alerts visually impaired of an approaching hazard such as pools or vehicular-traffic areas. Resilient tile is part of manufacturer's system of tiles, treads, risers, and stringers, and comes in eight colors. Tile meets appropriate ADA requirements and ANSI standards, according to manufacturer. Flexco, Chamblee, Ga.*



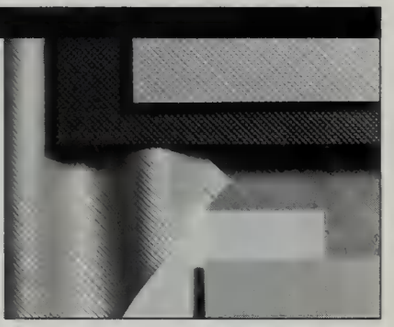
293. Classroom wall
The Learning Wall is simply reconfigured to fit changed classroom sizes demanded, for example, by computer integration, relocating lab stations, or ding ADA-compliant facilities. System consists of gypsum wall nels and door frames, along with terchangeable support studs and ish trim. USG Interiors, Inc., icago.*



294. Detectable warning tile
Warning tile for the sight-impaired is said to meet all physical property requirements of ADA and ANSI A-137.1. Impervious, frost-resistant tile comes in 2 1/16-in. square sizes and is available in black, white, and daffodil. Dal-Tile Corp., Dallas.



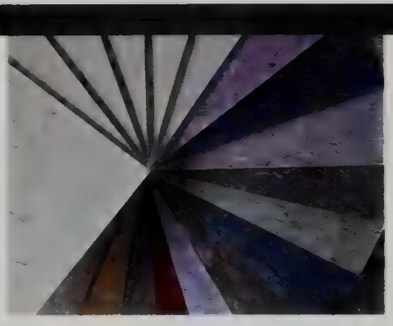
295. High-NRC panels
A 3/8-in. thick 2-ply fiberglass-core acoustical panel system delivers high NRC values, and absorbs impact without destroying effectiveness. Available in 4- by 8-, 4- by 9-, and 4- by 10-ft standard panels (plus custom sizes), panels are installed with a V-joint reveal or coordinated moldings. Construction Specialties, Inc., Cranford, N.J.



296. Embossed wallcoverings
Collection of Type II vinyl wallcoverings offers architectural embossings and innovative printing. Known as Counterpart/3, product comes in nine patterns, in a broad selection of colors and textures. Suitable for healthcare, and institutions, as well as commercial, retail, and hospitality uses. Maharam, New York City.



297. Bulgarian limestone
Flooring is made from a mixture of three Bulgarian stones to provide a many appearance in a beige/cream color range. Blue English and French tones also available. Colors make possible checkerboard patterns. Floor can be laid indoors or out. Paris Ceramics, New York City.



298. Vinyl tile in 18 colors
New colors in manufacturer's Standard Excelon Imperial Texture vinyl-composition-tile series include six off-white colors with high light reflectivity. Suitable for healthcare, retail, and educational uses, tile offers a textured look based on tone-on-tone grained visual elements. Armstrong World Industries, Inc., Lancaster, Pa.



299. Security wall panel
Composite wall panel is made of 3/4-in. or 5/8-in. fire-rated gypsum wallboard laminated with a .081-in. opaque Lexan LT300 polycarbonate sheet. Exposed surface is then finished with traditional drywall materials. Suitable for interior security uses such as correctional facilities. Coreguard, Inc., Bay City, Mich.



300. VCT in 60 colors
Vinyl-composition tile comes in two series: Essentials, offering 48 base-grade colors, and Inspirations, offering 12. Product complies with requirements of ASTM 1066-87 for Composition 1, Class 2 VCT, according to manufacturer, and is suitable for high-traffic areas. Mannington Commercial, Salem, N. J.

Product Data on CAD disk

For more information, write item numbers on Reader Service Cards.



301. Laminated-wood flooring
A new narrow width, Windsor 2 1/4-in.-wide strip can be installed in areas said to be too abusive for conventional wood-floor products. Finished in a medium-gloss, UV-cured polyurethane, the five-ply floor comes in six colors, and can be glued, nailed, or floated over many subfloors on-, above, or below-grade. Mannington Mills, High Point, N. C.



302. Thin FRC underlayment
Ultraboard, made of autoclaved fiber-reinforced cement, comes in a 1/4-in.-thickness for use as an underlayment, resilient-flooring substrate, and ceramic-tile backerboard for both vertical and horizontal applications. Panels weigh 1.9 lb psf, can be scored and snapped, or cut and drilled with normal wood-working tools. Eternit, Inc., Blandon, Pa.



303. Rubber-floor options
The Noraplan Stone system offers floor products with consistent colors and coordinated designs across areas with distinct functional requirements. Standard-traffic Stone flooring comes in 13 colors; Stone A1 resists static-electricity discharge; and Stone Elastic muffles footfalls. Freudenberg Building Systems, Inc., Lawrence, Mass.



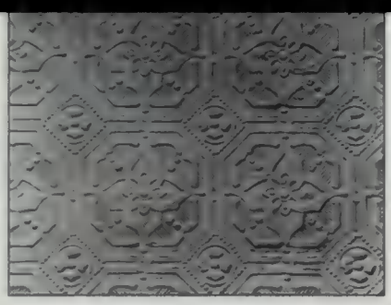
304. Textile wallcovering
An expanded pattern and color range in Gossamer Steel wallcoverings includes jacquards in motifs drawn from nature. Fine-denier yarn is said to improve seaming; synthetic material meets or exceeds federal, state, and local toxicity, flammability, and other standards. Koroseal Wallcoverings, Fairlawn, Ohio.



305. Sculptured border tiles
Based on design elements from nature popular in Arts & Crafts Movement ceramics, art tiles simulate tree branches, pine cones, vines, and animals. Highly dimensional, they are suggested as wall borders and fireplace and backsplash trims. Color range includes deep greens, russett, and deep blue. Country Floors, Inc., New York City.



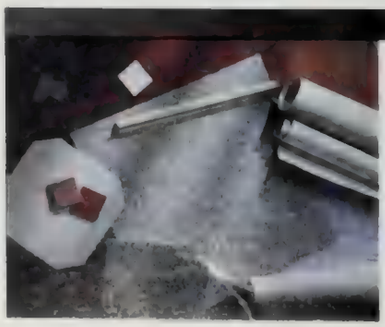
306. Three-dimensional ceiling
The Dynamix metal reveal-edge suspended ceiling comes in a choice of panel sizes, metal types, perforation patterns, and finishes. Said to be more durable than standard mineral-board or fiberglass ceiling panels, they qualify for a Class A flame-spread rating. Chicago Metallic, Chicago.



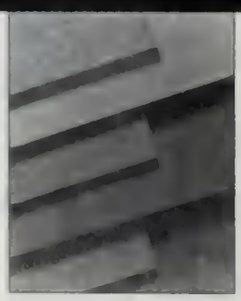
307. Ornate wallcoverings
Available from stock, Anaglypta SupaDurable Victorian-era wallcoverings are made with cotton fiber, and are said to be hard-wearing enough for high-traffic wall areas yet light enough to use on ceilings. The embossed wallcovering is finished on-site with paint or faux treatments. Outwater Plastic Industries, Inc., Wood-Ridge, N. J.



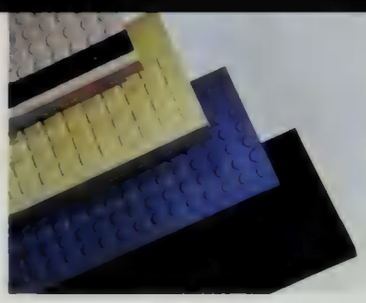
308. Mosaic-look sheet vinyl
A new design suggested for residential use, Celestial sheet-vinyl flooring offers a range of mosaic-tile patterns in relatively bright colors. Pictured is Zodiac, a pearlescent look with multi-colored tile star bursts and white "mortar joints." Congoleum Corp., Mercerville, N. J.



309. Glazed porcelain pavers
A [illegible] body, party-size sheets [illegible] for large-area [illegible] floors. [illegible] materials [illegible] porcelain [illegible] description [illegible] the [illegible] Tiles.



310. Noise-control wallcovering
Acousticord, a fusion-bonded ribbed-texture blend of wool/mohair and synthetic yarns, deadens sound, cushions impact, and provides a level of thermal insulation in commercial buildings. Contrasting colors may be juxtaposed to create wall graphics; the surface is compatible with both Velcro and pushpins. Eurotex, Philadelphia.



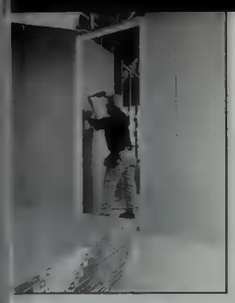
311. Safety stair treads
Made to match Johnsonite rubber or vinyl floor tiles in color and luster, treads meet visibility requirements with a clearly contrasting 2-in.-wide abrasive strip insert. Stair products come in a selection of raised-, square-disk, and smooth-surface treatments. Johnsonite, Chagrin Falls, Ohio.



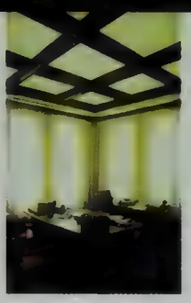
312. Speckled grouts
Described as stain proof, grouts have less than 1/2 percent water absorption. Setting materials are offered in 35 solid colors, seven Spec-L blends, and a new, highly chemical-resistant epoxy suggested for kitchen use where spills aren't cleaned up quickly. Laticrete, Inc., Bethany, Conn.*

* *Product Data on CAD disk*

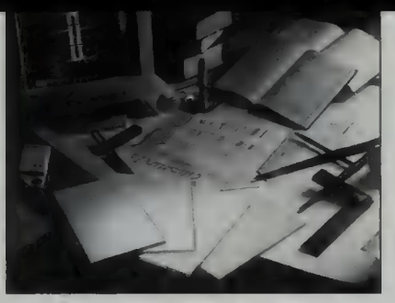
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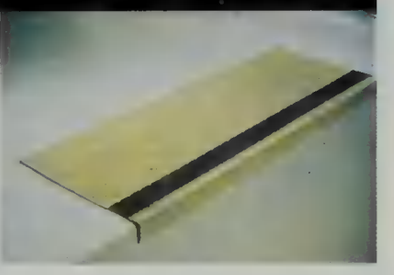
13. Gypsum wall panel
ltracode Core is the first single-yer interior gypsum-board wall ystem to provide a two-hour fire ating, says its manufacturer. The 4-in. Sheetrock gypsum panels are -ft wide and come in lengths of 8, 9,), and 12 ft. Because it is a single-yer system, the product reduces oth labor and material costs. United ates Gypsum Co., Chicago.*



314. Ceiling system
The Bold Beam ceiling treatment can be installed as easily as acoustical tee-grid systems, but adds depth and detail to ceiling designs. A modular system that can incorporate a luminous ceiling, Bold Beam is available in real wood veneers, as well as painted and laminated surfaces. Norton Industries, Lakewood, Ohio.



315. Prefinished wall panels
Available in four color combinations, the Gold Bond Durasan Da Vinci Collection of prefinished vinyl-covered gypsum wall panels achieve a one-hour fire rating when used with steel or wood studs. The color combinations imitate the look of stone. Gold Bond Building Products, a National Gypsum Division, Charlotte, N.C.



316. Stair treads
The Grip Strip VI Series of stair treads for the visually impaired meets building codes that require contrasting color strips at least 2- in. wide on the top and lower tread of each stairway. Treads come in nearly a dozen different colors with contrasting strips of black, gray, brown, or yellow. Musson Rubber Co., Akron, Ohio.



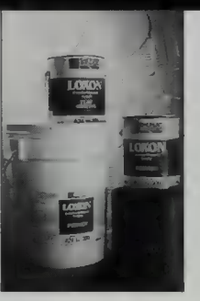
17. Porcelain tiles
ıe Old Stone series of porcelain tiles calls the look of natural stone vers with their dimpled surface and riations in shades. The tiles are 1/2-thick and come as either triangles 6-in.-by-6-in. squares. Available in ıe earth colors, the tiles can be used loors or out, on floors or facades. ıchtal Ceramics, Roswell, Ga.



318. Carved ceiling panels
A new series of carved ceiling panels, entitled Cirrus Themes, features whimsical designs of trains, leaves, galaxies, friendly animal tracks, and alphabet letters. The fine-textured 2- by 2-ft panels are available for either 9/16-in. or 15/16-in. T-bar grid systems. Armstrong Contract Interiors, Lancaster, Pa.



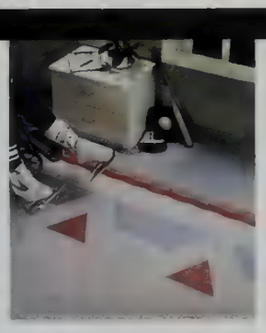
319. Interior wall finishes
Surface Systems is ■ line of wall-surfacing products that offers a range of materials and finishes, from natural wood and metal veneers to high-pressure laminates and faux stone. The product is a pre-engineered system with 16- by-24-in. or 24-in. square panel modules for easy installation. Marlite, Dover, Ohio.



320. Exterior coating system
Loxon Exterior Masonry Acrylic Coating is a VOC-compliant coating system specifically engineered for above-grade masonry surfaces. The complete Loxon system (including primer and topcoat) is designed to protect demanding surfaces such as highly alkaline masonry and marginally cured concrete. The Sherwin-Williams Co., Cleveland.*



1. Metal-ceiling system
ıew installation system gives Cas-tes metal-ceiling panels the nolithic look of drywall but with al downward accessibility. The tem uses a standard 15/16-in. osed tee grid on a 24-in. module to ate narrow reveals. Panels are ıer smooth, or perforated for ustical absorption. Armstrong ıtract Interiors, Lancaster, Pa.



322. Vinyl floor tiles
Collage vinyl-composition floor tiles include multi-colored Thru Chip mottles throughout their thickness to maintain colors even after years of use. The collection of tiles comes in 12 color schemes that were created to harmonize with existing commercial and institutional environments. Tarkett, Parsippany, N. J.



323. Flat and engraved tiles
The Steppes Portfolio is a collection of floor, wall, countertop, accent, and trim tiles available in two monochromatic colors: Lumina white and French Provincial cream. The line includes 8-in.-square engraved and field tiles, a 12-in.-sq engraved tile, and engraved listellos. Florida Tile Industries, Lakeland, Fla.



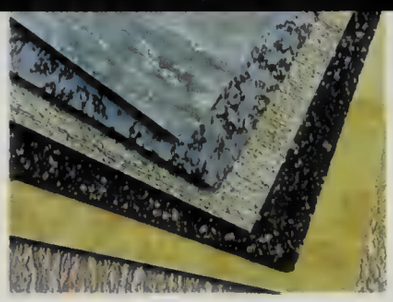
324. Resilient flooring
Developed in England, Arteca resilient flooring imitates the look of wood, tile, marble, brick, or stone. Instead of being sold in prefabricated sheets, Arteca floors are created using custom-cut tiles, strips, inlays, and borders. A CAD/computer-aided-manufacturing process provides flexibility in designs and colors. Courtaulds Flooring U. S., Louisville, Ky.

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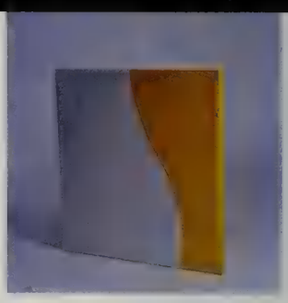
325. Floor tiles
Element, a new Interceramic line of skid-inhibiting, 12- by 12-in. dry-glazed ceramic tile with the look of marbleized granite is available in Agua (white), Fiero (dark beige), Tierra (beige), and Viento (black). Impact-, acid- and frost-resistant; recommended for residential and commercial applications. Interceramic, USA, Carrollton, Tex.



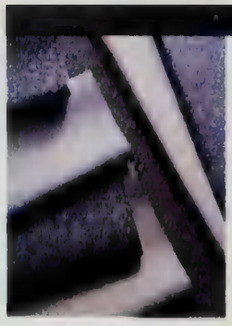
326. Wall coating
Duroplex, an acrylic spray-on wall coating, offers a new line of Castle-stone "old world finishes" recreating the appearance of distressed, aged walls. Abuse-resistant and ideal for hospitality, medical, and tenant-finish work. Available in over 30 different textures and an almost unlimited color palette. Triarch Industries, Houston.



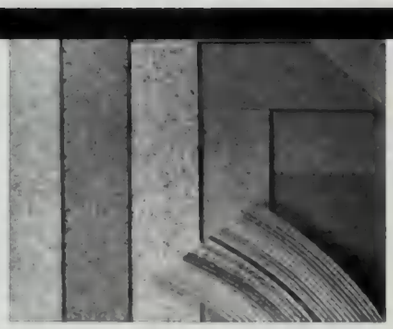
327. Access tactile tile
Bright yellow access tiles feature raised tactile symbols detected through soles of shoes or cane strokes in two patterns indicating caution or danger. Produced in accordance with Americans with Disabilities Act. Custom colors available upon request. Flexible tile measures 6- by 12- by .2-in. Rehau Inc., Leesburg, Va.



328. Acoustical panels
Conwed's Tedlar encapsulated acoustical wall and ceiling panels offer a cleanable, sanitary product with excellent acoustical absorption. No particulate matter escapes to harm areas requiring minimal air-borne contamination. USDA approved and said to be impervious t solvents, acids, grease, and chemicals Conwed, Ladysmith, Wis.



329. Wallcovering
The Encausto Series of 54-in. vinyl wallcovering incorporates a new finish achieved by hand-rubbed applications of plaster, wax, and color. Available in subtle tone-on-tone colorations and translucent overprints of stripe, check, and harlequin designs. A Type II, Class A covering. Innovations in Wallcoverings, Inc., New York City.



330. Vinyl flooring
Armstrong has introduced 6-ft wide, 60-mil-thick Medintech Tandem commercial sheet vinyl flooring and Medintech patterned welding rods to blend seams almost invisibly with sheet goods, providing a barrier against dirt and moisture. Available in 25 colors including 11 new ones. Armstrong World Industries, Inc., Lancaster, Pa.



331. Rubber flooring
Brightly colored rubber floor tiles designed in abstract patterns by architect Amie Gross in abstract patterns are now available. The 12- by 12-in. by 2.0-mm tiles display scattered non-directional designs that coordinate with an expanded selection of color-coordinated floor bases. Stock inventory colorways. Allstate Rubber, Ozone Park, N. Y.



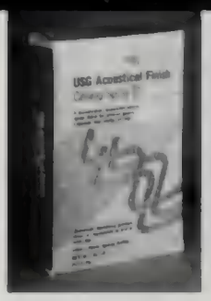
332. Rubber interlock flooring
Kaswell's Inter(B)lock Series 7800 Paver features a "dog bone" shape that interlocks and converts hard floors into comfortable surfaces. The slip-resistant molded flooring measures 7/8-in. thick with 3.4 blocks per square foot. Available in standard or fine-mesh textures and a wide range of colors. Kaswell & Co., Inc., Framingham, Mass.



333. Ceramic tiles
The [illegible] collection includes a [illegible] and seven [illegible] with [illegible] tiles [illegible] of [illegible]. The [illegible]



334. Vinyl wallcovering
An innovative collection of Viertex 54-in. contract-vinyl wallcoverings features 38 luxurious patterns. New colors, styles, and patterns have been added. Unique textures include fabrics, suedes, faux marble finishes, stucco and stone patterns, stipples, and hand-sculpted designs. Forbo Industries, Inc., Hazleton, Pa.



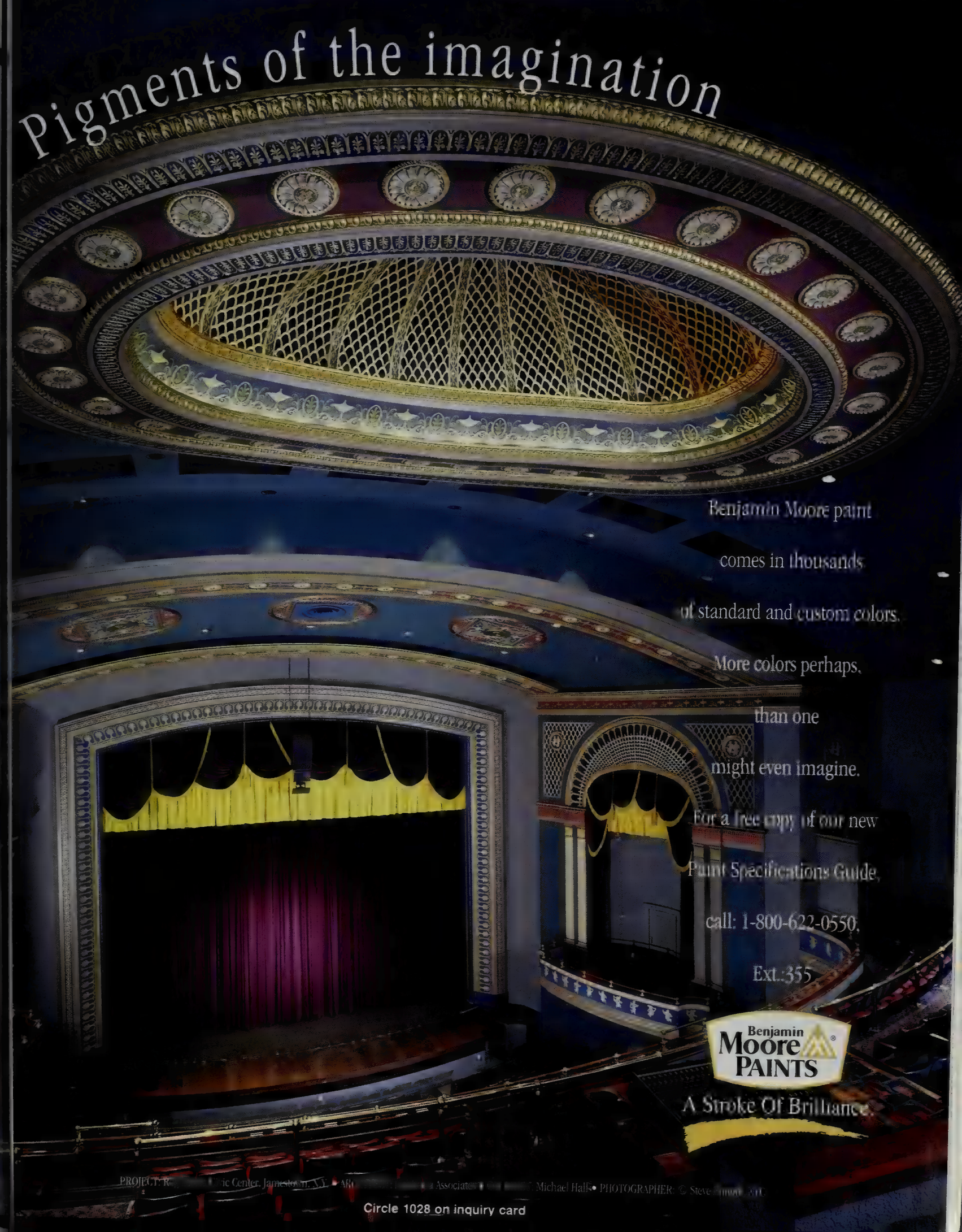
335. Acoustical finish
Spray-applied USG Acoustical Finish is a chemical setting-type textured ceiling finish with a tested NRC rating of .75 when applied in 1-in. thicknesses over concrete and plaster substrates. The fire-rated finish provides a textured surface that dries to a natural white color. United States Gypsum Co., Chicago.*



336. Vinyl floor tiles
Natural Inspirations is a new premium line of vinyl-composition floor tiles introducing updated colors derived from nature. Thirty new colors have been added to the 22 existing styles to offer designers an extensive choice. Available in 12- by 12-in. size and 1/8-in. thick. Azrock Industries, Inc., San Antonio.

* *Product Data on CAD dis*

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Q

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AZROCK

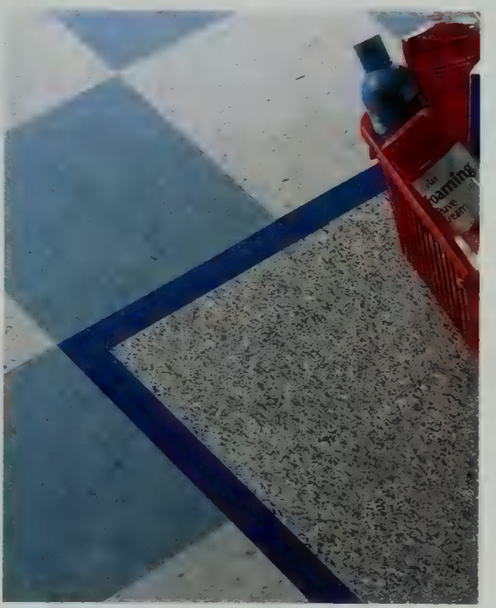


Azrock Slip Resistant Tile shown with Classic Granite.

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When extra traction is your prime concern, Azrock's Slip Resistant vinyl composition tile is your most beautiful solution. Its natural granite pattern brings a prestigious look to any interior, and it's offered in seven versatile granite tones. ◆ This rugged tile combines a textured surface with special friction granules, providing greater slip resistance than smooth-surfaced floors. And it's virtually as easy to maintain as smooth-surfaced floors. What's more, the granules and pattern extend throughout the thickness to last the life of the floor. ◆ So the next time you need to install an extra measure of safety, do it with style. Call your Azrock contract dealer, or write Azrock Industries Inc., Dept. SRT, P.O. Box 696060, San Antonio, Texas 78269. Fax 210/558-6614.

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Azrock Slip Resistant Tile also coordinates with the colors in our standard-priced Custom Cortina line.

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CERAMIC COMPOSITION

WITH CHROMA® GLAZED TILE



©Jim Roof

In addition to the conventional method of tile installation used in the project shown here, Buchtal offers a new prefabricated system, Keraion-Quadro, which invisibly fastens large format tile to metal grids on



At Buchtal Ceramics, we choose our words carefully. Much like an architect chooses a building material. That's why when we say Chroma® offers the designer the most extensive palette of modular sizes and colors in glazed ceramics, you can believe it's true. ● With 71 colors and sizes from 2×10 strips to two-foot square panels, dramatic design statements are inevitable with Chroma. Architects like you have been using Chroma all over the world for dozens of applications. In banding, to identify spaces and define circulation patterns. As colorful medallions to punctuate a never-ending wall. Or to fully expose an entire facade. ◆ And Chroma's performance attributes take the mystery out of specifying glazed tile. Chroma is frost-proof, acid-resistant, and colorfast. And offers high bond and breaking strengths. ● With Chroma, we wrote the book on glazed ceramic tile. ◆ Chroma glazed ceramic tile is featured in our catalog in Sweet's File 09300/BUB. Or contact Buchtal Ceramics directly at 1325 Northmeadow Parkway Suite 114 Roswell, GA 30076 (404) 442-3700 Fax (404) 442-5502. ◆ In the meantime, every picture tells a story.

BUCHTAL CERAMICS

Product 2×10, 4×4, 8×8 and 10×10 716 Anthracite, 4×4 722 Blue Grey, 2×10 726 Cobalt Blue

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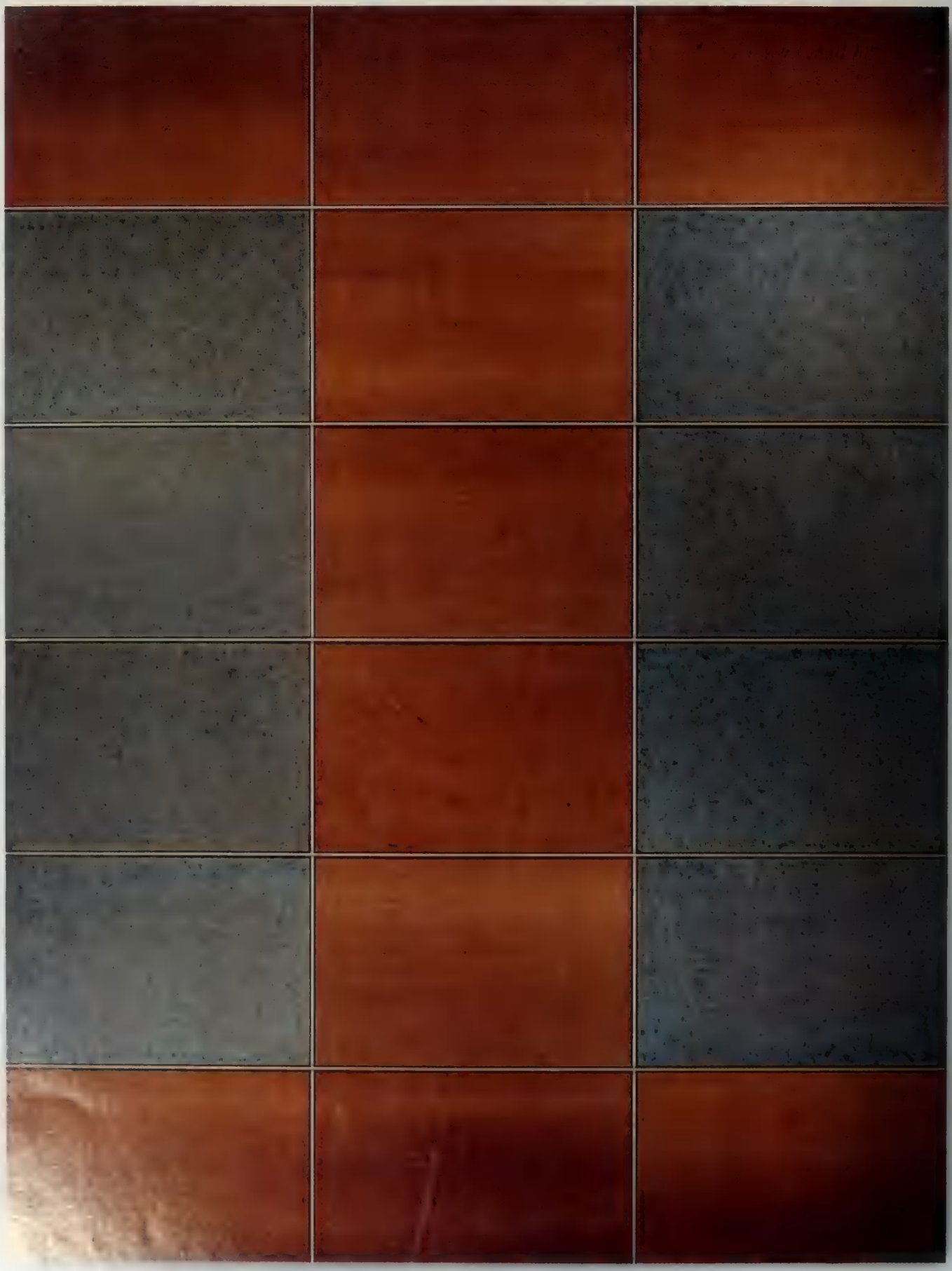
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With Shadow Line Battens custom painted Buckskin

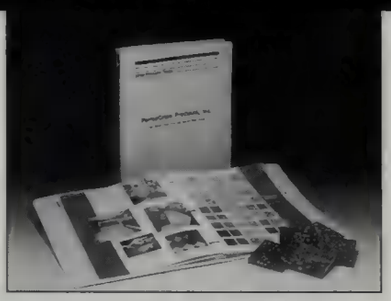
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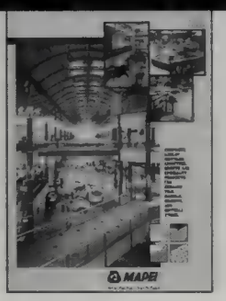
For more information, write item numbers on Reader Service Cards.



337. Multicolor textures
Described as a durable, UL Class A fire-rated alternative to paint and vinyl, Zolatone multicolor wall finish comes in various degrees of texture. A specification folder holds actual samples, from marble-like creams and tans to dark granite looks. Surface Protection Industries Co., Los Angeles.



338. Cast-stone tiles/panels
A brand-new Design Information Catalog covers Armstone cast-marble floor tiles, interior wall panels, and Permetage resin-reinforced Travertine Marble and Granite tiles. Contains architectural specifications, test data on physical characteristics, installation recommendations, and maintenance tips. PermaGrain Products, Inc., Media, Pa.



339. Tile-setting products
Pertinent characteristics and specification compliances for a full line of grouts, mortars, adhesives, and other tile materials illustrated in a 1994 architectural catalog. Contains reference charts, installation diagrams, and technical and packaging information. MAPEI Corp., Elk Grove Village, Ill.*



340. Hardwood flooring
Flooring made of Northern-grown hardwoods—maple, ash, oak, cherry, and beech—shown in contemporary, classic, and country styles. Planks come in either 2 1/4- or 1 1/2-in widths and random lengths; "shorts" also frequently available. A four-color, eight-page booklet illustrates all wood types and grades. Action Floor Systems, Inc., Mercer, Wis.



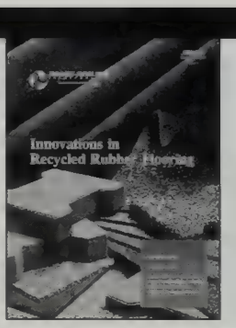
341. Historic and other paints
A new fan deck holds paint chips of over 1,850 distinct shades, including Moore-O-Matic custom colors for commercial, industrial, and residential use, as well as the 174 colors in this manufacturer's Historical Collection. Benjamin Moore & Co., Montvale, N. J.



342. Italian ceramic tile
Produced by the Italian Trade Commission, a new buyer's guide organizes information by tile type, use, designer, and manufacturer. Listings include 162 Italian ceramic- tile manufacturers active in the American market. An on-line computer service sources distributors and outlets for all tile. Italian Tile Center, New York City.



343. Indoor/outdoor tile
The design versatility of indoor/outdoor, all-weather ceramic tile is illustrated in an eight-page, full-color brochure. Extensive installation photography is included along with color swatches, performance specifications, special trim shapes, and installation and maintenance recommendations. Metropolitan Ceramics, Canton, Ohio.



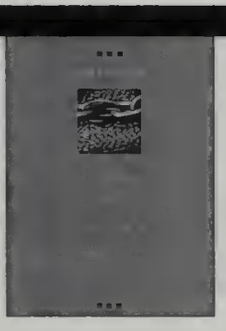
344. Recycled-rubber flooring
Everlast, Ever-Roll, and Regupol Pavers and Tiles are made from 100-percent recycled-tire rubber. Flooring is known for its sound- and impact-absorption properties. Suggested for pedestrian-friendly interior applications as well as outdoor sports surfaces. Comes in bright and deep colors. Dodge-Regupol, Inc., Lancaster, Pa.



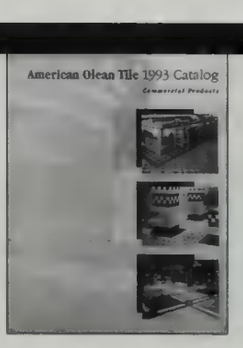
345. Earthtone acrylic stains
A new Earthtone Custom Color Card introduces an expanded line of solid-color, 100-percent acrylic exterior stains. Paint dealers can mix any of over-30 O.V.T. stain colors using just three all-acrylic tint bases. Said to be exceptionally durable, the stains have a 12-year guarantee when applied to new wood. Samuel Cabot, Inc., Newburyport, Mass.



346. Vinyl/linoleum floors
Available to architects, interior designers, and specifiers, the Forbo Floor Covering Sample Set contains a facts binder, folders featuring linoleum and vinyl flooring, and eight flooring-sample strap sets. Sets include patterns and colorways for the new MultiStep sheet vinyl and Colorstyle solid-vinyl tile floorings. Forbo Industries, Inc., Hazleton, Pa.



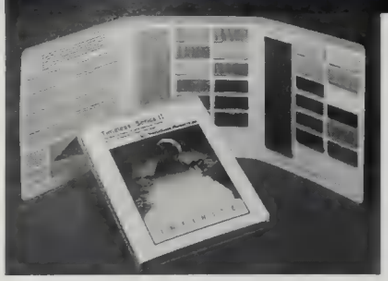
347. Durable carpeting
Woven interlock carpets, in a wide range of patterns, textures, and fibers, are displayed in an eight-panel fold-out color brochure. Suitable for busy commercial locations subject to wheeled traffic such as educational facilities, healthcare, airports, and shopping centers. Mohawk Commercial Carpet, Atlanta.



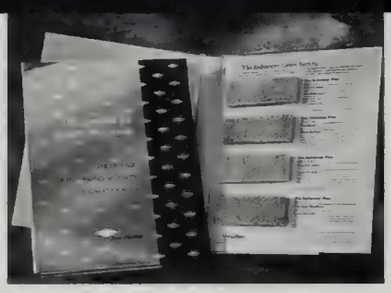
348. Ceramic tiles
Prepared for the architect and specifier, a 60-page catalog covers a full range of commercially-rated tile products for walls and floors. Also describes natural-stone tile, installation materials, custom-design services, and a loose-tile sample program. Separate residential catalog available upon request. American Olean Tile Co., Lansdale, Pa.

Product Data on CAD disk

For more information, write item numbers on Reader Service Cards.



349. Laminated-plank flooring
An updated Architectural Sampler for the Timeless Series II line of acrylic-impregnated, laminated-plank flooring contains samples of its complete color palette including three new colors—Burnished Oak, Natural Cherry, and Hazel Oak. Range includes 25 classic and contemporary colors. PermaGrain Products, Inc., Media, Pa.



350. Carpet backing
An architect folder containing specifier updates describes properties and performance of The Enhancer Plus carpet backing. Information includes acoustical properties, moisture performance, flammability, thermal resistance, shock absorbance, carpet-face retention, and ADA requirements. Dow U.S.A., Dalton, Ga.



351. Powder coatings
A 16-page powder coatings color chart and stocklist contains product descriptions, features, and applications. Also includes minimum order amount, packaging, storage time, theoretical coverage, cure parameters, substrates and pretreatment, methods of processing, and measures of saltspray and acid resistance. Tiger Drylac U.S.A., Inc.



352. Rubber flooring
Endura rubber flooring is said to combine durability, comfort, and slip resistance. Installations include convention centers, college chemistry labs, research laboratories, and sports stadiums. A 12-page, four-color booklet describes product range and shows flooring designs and colors. Endura Flooring, Waltham, Mass.



353. Precast terrazzo flooring
New installation procedure makes precast-terrazzo flooring easier and cleaner to install. Square-edge tiles are set with a 1/16-in. minus joint, grouted flush, and then ground and polished on site. Catalog shows application photos, color swatches, standard and custom accessories, and technical data. Wausau Tile, Inc., Wausau, Wis.



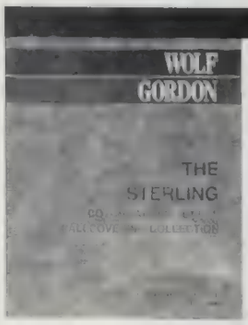
354. Custom tile signage
Questech Premium Metals are used for architectural surfacing, trim, signage, graphics, display, and merchandising. A combination of real metals and polymers, the material may be cast in a multitude of forms and textures ranging from high relief to delicate patterns. Four-color, fold-out brochure demonstrates applications. Intaglio, Ltd., New York City.



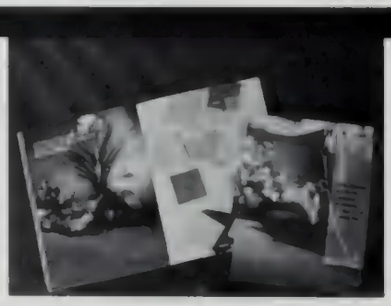
355. Floor products
A 34-page catalog, loaded with illustrations, charts, and specifications, demonstrates a broad range of rubber, vinyl, and static-control flooring and accessories. Applications include educational, light-industrial, hospital, retail, office, and hospitality. Detailed resistance chart. VPI, Sheboygan, Wis.



356. Acoustical ceilings
The Voyager line of commercial-grade ceilings satisfies applications requiring Class A ratings and acoustical properties. A four-page brochure describes physical properties, designs, sizes, and specifications of the complete mineral-ceiling product line. Celotex Corp., Tampa, Fla.*



357. Textile wallcoverings
The [illegible] comprised [illegible], and rayon. [illegible] and [illegible] are [illegible]



358. Tile flooring
American Marazzi's 1993/1994 product catalog illustrates a broad variety of styles, patterns, colors, and sizes of its tile selection for residential and commercial applications, indoor and out. American Marazzi Tile, Inc., Sunnyvale, Tex.



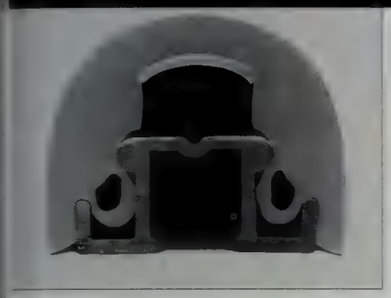
359. Concrete floor coating
The Chemglaze concrete floor-coating system offers a complete line of products for severe-service environments in a color selection of popular shades. An informational booklet and specification sheets explain preparation products, primers, epoxy resurfacers, topcoats, and auxiliary products. Lord Industrial Coatings, Erie, Pa.



360. Latex mortar
A brochure describes Super Flex latex-modified thin-set mortar. Its makers say it handles hard-to-bond tiles and unusual substrates with unsurpassed bond strength. Designe for interior or exterior installation o a vast array of surfaces including all types of ceramic, porcelain, glass, an natural-stone tiles and surfaces. TE Inc., Palatine, Ill.

* *Product Data on CAD dis*

For more information, write item numbers on Reader Service Cards.



361. Bumper system
The Boston Bumper System, made of non-shrinking flexible vinyl strengthened with a backbone of rigid metal extrusion, offers shock absorbance, impact resistance, and radius capabilities. Provides damage protection for fixtures and walls. Easy installation. Available in 18 standard colors and custom colors. Boston Metal Products, Medford, Mass.*



362. Fireplace mantels
Mantels created from architectural drawings or existing designs offer unlimited design possibilities for commercial and residential applications. May be ordered in any size and in many kinds of wood. Handcarved designs include: Louis XVI and Classic and Country looks in the French and English manner. Chadsworth Inc., Atlanta.



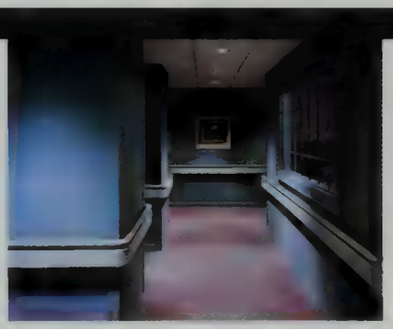
363. Building directory system
King Link, a solid-state, stand-alone, touch-screen computer, gives users access to a system capable of displaying thousands of lines of information. Combines state-of-the-art technology with experience in the design and manufacture of architectural sign products. King Products Ltd., Mississauga, Ont..*



364. Structural signage
Spaceframe systems provide signage in virtually any color. A maintenance-free finish consisting of galvanized steel coated with polyester powder that insures long life. Complete CAD and specification software services available. Mero Structures, Inc., Germantown, Wis.*



365. Glass-top sink module
A glass-top sink module designed for wall-mounting directly into modular Series M mirrored cabinet Stacking System appears suspended in space. Fully mirrored, 30-in.-high cabinet with 3/4-in. clear furniture-quality glass top contains a stainless-steel bowl, chrome faucet, and trap. Plumbing is hidden within cabinet. Robern, Inc., Bensalem, Pa.*



366. Ergonomic railings
Acrovyn's three new ergonomically styled hand railings offer an array of design options. Dividing railing height into individual sections provides up to five different color options in one railing. Can be mixed/matched from 63 solid colors and 53 stone or wood patterns. High-impact vinyl/acrylic material. C/S Group, Muncy, Pa.



367. Bicycle-storage locker
The Cycle Pod's wedge-shaped, space-saving design allows for optimum space utilization for bicycle storage. Molded from coextruded, engineering polymer with a structural steel frame, pods can be installed individually, in circular configurations, or in rows. Weather-proof and vandal-proof. Rally Enterprises, Inc., Santa Rosa, Calif.



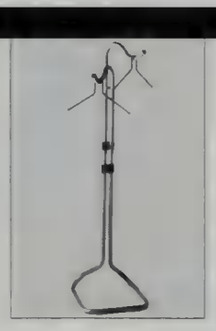
368. Porch-screening system
Porch-screening frame system eliminates staples, nails, wooden lattice, and paint. Combines maintenance-free vinyl with spline screening method that adapts to wooden frame porches. Allows quick replacement for fiberglass and aluminum screens. Available in 8-ft lengths in white, gray, beige, and brown. Screen Tight, Georgetown, S. C.*



369. Phenolic compartments
Phenolic-toilet, shower, and dressing compartments all constructed of heavy-duty stainless steel. Doors, partitions, and pilasters guaranteed not to warp or delaminate under high moisture conditions. Ideal for hose-down cleaning. Available in overhead braced, floor-mounted, and ceiling-hung configurations. Metpar Corp., Westbury, N.Y.*



370. Advanced training system
The Tactics Plus Advanced Training System is a wall-mounted, double-track modular system that allows overlapping of reversible writing surfaces, tackable panels, flip charts, and projection screens for training seminars. Lightweight components can be moved and placed across corners. Peter Pepper Products, Inc., Compton, Calif.



371. Floor costumers
The TD1 and TD2 floor costumers combine a smooth, sleek form with a modern, powder-coated steel finish in gray or soft beige. The TD1 design features an umbrella holder and one coat hook, while the TD2 design includes two coat hooks. Both costumers are fitted with completely untraditional hangers. Vogel Peterson, Garden Grove, Calif.



372. Library shelving system
The Legacy Shelving System customizes media storage and shelving to exact specifications. Accommodates all media formats: cassette and video tapes, compact discs, laser discs, and books. Options include flat shelving, angled media storage, and roll-out glide drawers. Reinforced steel and wood. Bretford Manufacturing, Inc., Schiller Park, Ill.

Product Data on CAD disk

For more information, write item numbers on Reader Service Cards.



373. Modular sign systems
Modular signs can be made of virtually any material, and in any shape or size, through precision-registration on perforated metal chassis. Replacement components can be interchanged. Meets all ADA requirements. ASInvision software with database-management system and drawing program is also available. ASI Sign Systems, Inc., Dallas.*



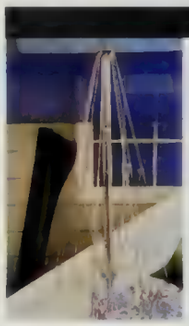
374. Partition/cubicle systems
Melamine-covered phenolic panels are used to form framed and frameless Marathon and NT Normbau systems. Both are said to be waterproof, rustproof, and impervious to chemical damage. Standard- and custom-colors can be mixed or matched. W&W Sales Ltd., Spring Valley, N. Y.



375. Bath-in-a-box
The Rain Room is an all-tile, self-contained wet area with 5-ft whirlpool tub and separate shower. Coordinated wall panels, ceiling, ceramic-tile shower tray, and accessories come in kit form. Rain Room can be completely installed in eight hours by two workers using dry-construction methods, says the maker. Hoxan America, Inc., Piscataway, N. J.



376. Custom signage
ADA-compliant interior and exterior sign systems feature carved signs that are available in most building materials, from mirrored metal to marble. Raised-lettering signage is achieved with the manufacturer's Graphic Blast process. Free catalog, samples, and a loan-out video are available. Best Manufacturing Sign Systems, Montrose, Colo.



377. Awning fabric
Awntex vinyl-coated polyester in an open-weave construction is said to provide shading without trapping heat or airflow. Two styles offer 70- and 90-percent shade factors. Open-mesh weave is designed to reduce dirt build-up and promote rapid drying. Fabric is said to be mildew-, UV-, flame-, and water-resistant. The Astrup Co., Cleveland.



378. Locker systems
Honeycomb-core hollow-metal doors withstand wear and tear, says the maker. Louvers create two channels for unobstructed ventilation. Continuous piano hinge provides additional strength. Powder coating in 17 color choices gives brilliant, hard, even finish. Hadrian Manufacturing, Inc., Burlington, Ont.



379. Braille signage
Architectural signage for the visually impaired is said to meet or exceed ADA requirements. In addition to generic signage, customized signs are available for those who require specific colors, logos, materials, manufacturing processes, and designs. Certified by the Lighthouse for the Blind. Intelligent Signage, Inc., Sarasota, Fla.



380. Atomizer ring
Water-saving shower ring generates delicate mists, allowing bather to remain warm in the tub and cooler after a steam bath. Available in five standard metal finishes: nickel silver, brushed nickel, gold, silver and gold and steel and gold. Kallista, Inc., San Leandro, Calif.



381. Concrete toilet partition
[illegible] and peeping [illegible] panels [illegible] they are [illegible] sidewalk [illegible] thick, the [illegible] can be [illegible] ledge [illegible] doors [illegible]



382. Accessible signage
ADA-compliant Adapt line is available in a variety of choices: single unit in any size, color, or shape; retrofit plate for existing signage; raised numbers or letters with Braille window and modular inserts. Also, standard-symbol and lettered signage. Signage survey sent on request. Innerface Architectural Signage, Inc., Lilburn, Ga.



383. CAD bumper details
The Boston Bumper wall-protection line on AutoCAD 12 includes drawings of seven profiles, end treatments, and corners. Available on 3.5- and 5.25-in. diskettes, software is said to save architects time by reducing drafting. Boston Retail Products, Division of Boston Metal Products Corp., Medford, Mass.*



384. Protective handrails
Contoured to fit the hand, aluminum handrails come in one-color solid and two-color accent-stripe versions. Designed to protect 5 1/2 in. of wall surface, rails have 1 1/2 in. of gripping area to aid the elderly and disabled. Each rail style complies with flammability standards and ADA accessibility guideline 4.26.2. Pawling Corp., Wassaic, N. Y.

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Sunbrella® acrylic fabric and Sunbrella Firesist® fabric make a beautiful place like this even more beautiful. And there are so many uses for Sunbrella. From cabana covers to awnings to canopies to dividers and more. You can specify it for indoors or out too. And fire codes aren't a problem, because Sunbrella Firesist meets the requirements of the National Fire Protection Association and the California Fire Marshal's test.

Sunbrella Firesist is available in 30 beautiful styles. Regular Sunbrella fabric is available in over 90. But beauty is only part of the story. Our fabrics are incredibly tough. They retain their colorfastness and strength for years, even under the most extreme conditions. They have superior water repellency characteristics too. And they resist damaging mildew and mold attacks. So it's no wonder we offer the best five-year limited warranty in the business.

And it's no wonder Sunbrella is the number one selling canvas fabric in America.

So look in the Yellow Pages under "Awnings & Canopies" for the name of a dealer near you. And start specifying Sunbrella, around the pool, and everywhere else too.

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When you're looking for wall protection, how often do you run up against something this nice?

Patent Nos. 4083592, 4808451, 5013596, 5033244. Other patents pending.



The Boston Bumper. Clean, simple lines that work subtly and unobtrusively to protect interiors from wear and tear.

The Boston Bumper. Flexible vinyl that, unlike rigid protection systems, absorbs the shock of impact more quietly. And then returns for more.

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The Boston Bumper.™

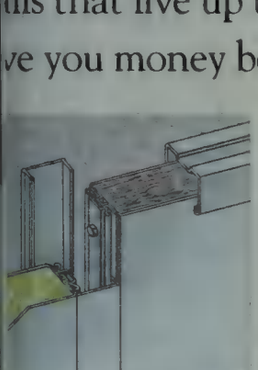
The finest line between protection and decor.

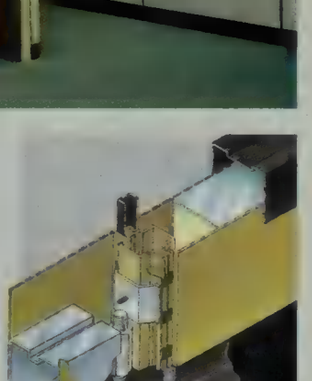
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Dowcraft Movable Walls keep facilities budgets in the right place. Your bank.

ome floor to ceiling wall systems are not engi-
neered for easy relocation. In fact building owners
n suffer as much as 40% loss of gypsum type demount-
le panels during the first reconfiguration of their
cilities. Dowcraft movable walls are "unitized" steel
lls that live up to their intended purpose. They
ve you money because relocation doesn't require
outside contractors, and panel loss rarely exceeds 10%, move after move. By specifying a Dowcraft system you can hold the line on budget by matching the type of wall to any functional and aesthetic requirement, whether it's a group of executive offices, a general office layout, or plant work spaces.









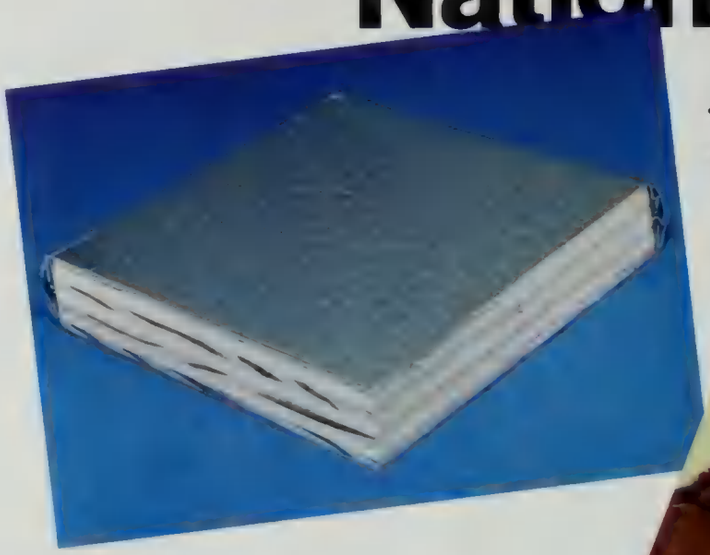
There are four application engineered systems in all, including a system which integrates with Haworth partition and wall furniture. When you're ready to move to a floor to ceiling system that's truly easy and economical to move, Dowcraft distributors and engineers will help you make the choice that makes sense for you. For catalog and design information, just call, write or FAX.

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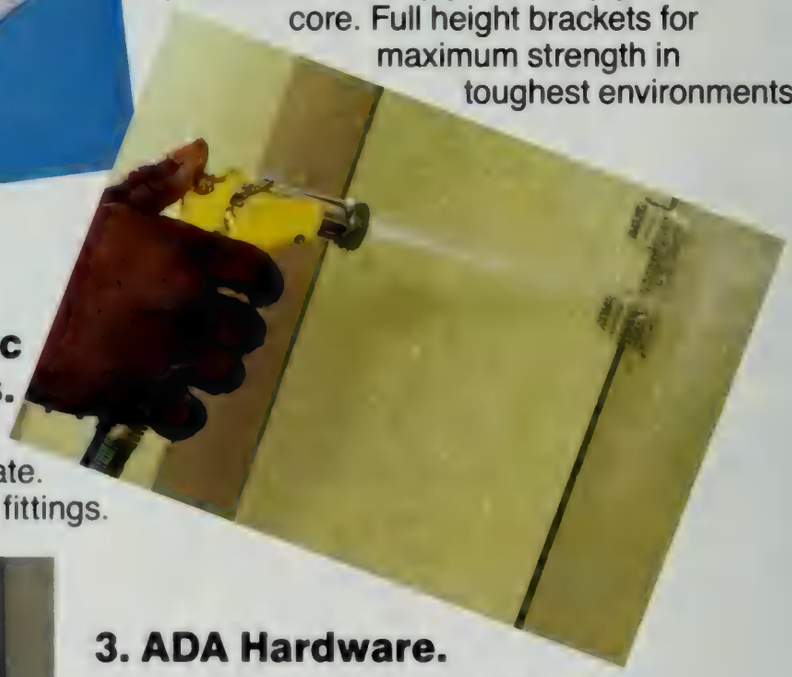
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1. Heavy Duty Stainless Compartments.

Optional textured leathergrain finish eliminates scratching and marring problems. Seven-ply exterior plywood core. Full height brackets for maximum strength in toughest environments.



2. Solid Phenolic Compartments.

Water resistant for hose down cleaning. Will not warp or delaminate. All stainless steel hardware and fittings.



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Concealed slide lock with uniform appearance for standard and handicapped doors. Unique, industry-first "occupied" indicator.

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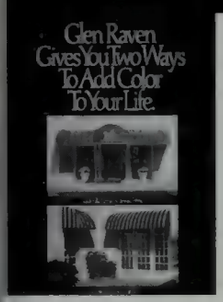


ADA MODIFICATIONS

Metpar

Circle 1038 on inquiry card

For more information, write item numbers on Reader Service Cards.



385. Canvas fabric
Woven from self-extinguishing modacrylic fiber, the Sunbrella line comes in 90 solids and patterns for use as awnings, canopies, cabanas, and other indoor and outdoor uses. Three brochures include Sunbrella and Firesist fabric specifications, palette of colors and patterns available, Glen Raven Mills, Inc., Glen Raven, N. C.



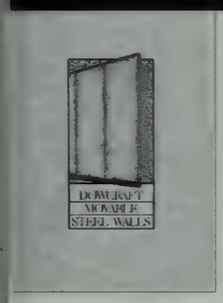
386. Signage guide
New architectural binder is designed to guide the architect/specifier through typical signage requirements of a project. Includes information on interior and exterior signage systems, with sections on specifications, colors and finishes; graphic options; and ADA compliance requirements. Charleston Industries, Elk Grove, Ill.



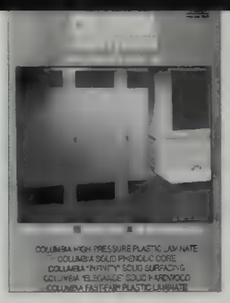
387. Toilet compartments
A new four-page catalog gives details of the Thrislington line of European-styled toilet compartments. Information on the Lotus 1200 series and the 1300 Combat series for heavy-duty demands is included. Bobrick Washroom Equipment, Inc., North Hollywood, Calif.



388. Lockers and postboxes
Security-locker line is presented in 12-page brochure with specifications, color guides, and locker-construction details. Styles shown range from coin-operated lockers to cluster-box units for apartment mailrooms; from luggage lockers to pistol lockups. American Locker Security Systems, Jamestown, N. Y.



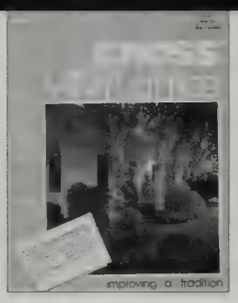
389. Movable office walls
Floor-to-ceiling systems are highlighted in an eight-page brochure: the design-oriented Benchmark Series I, in a wide choice of coverings and finishes; the more moderately priced Academic Wall; and the economical Rapid Wall Series 2. Cutaway-section illustrations detail construction of each system. Dowcraft Corp., Falconer, N. Y.



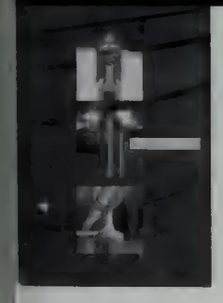
390. Stalls and compartments
New brochure highlights phenolic-core toilet compartments, which are overhead-braced, floor-supported, and ceiling-hung. Also shown: the Infinity and Fast-Tab lines of compartments and stalls and the Elegance solid-hardwood line of toilet cubicles. Partition Systems, Inc. Columbia, S. C.



391. Hospital accessories
Stainless-steel washroom accessories are detailed in a 48-page guide. The products are especially suited for hospital, school, commercial, and hotel/motel use. The lines featured are especially suitable for the needs of the physically challenged. A&J Washroom Accessories, New Windsor, N. Y.



392. Vinyl latticework
Deteriorating wood latticework can be replaced with vinyl latticework that never needs painting. Comes in 10 standard colors, and diagonal and rectangular patterns for home as well as commercial use. Aluminum railing and framing systems available with commercial versions. Eight-page brochure sent on request. Cross Industries, Atlanta.



393. Traffic-control rails
Sturdy uprights and crossbars can be used for support while waiting for counter service. All elements of Decoail system are fixed, and come in three styles—Art Deco, Contemporary, and Gothic. Six finishes—brass, bronze, black, copper, chrome, and pewter—and customized versions are available. Wylie Systems, Mississauga, Ont.



394. Towel warmers
A 20-page brochure features the complete line of Myson towel warmers. Handcrafted by English artisans in Britain, the warmers come in a range of styles and a variety of finishes, including chrome, brass, gold-plate, and 22k gold, as well as a palette of coordinating colors. Accessories also available. Myson, Inc., Essex Junction, Vt.



395. Crowd-control systems
Tensabarrier portable traffic-control have constant-force spring tapes that pull out easily yet remain taut and sag-free. Literature also shows signs, frames, and utility and decorative rail systems, including turnstiles, gates, and stair rails, and specialty items like sneeze guards and drink-rail bars. Lawrence Metal Products, Inc., Bay Shore, N. Y.



396. Banners and flags
Custom-design banners, flags, and awnings can add a splash of color to lobby interiors and restaurant facades. Most work is done by applique process, some by silkscreen. A complete line of national and international flags, flagpoles, and banner hardware is also featured in the company's literature package. Flagraphics, Somerville, Mass.

Product Data on CAD disk

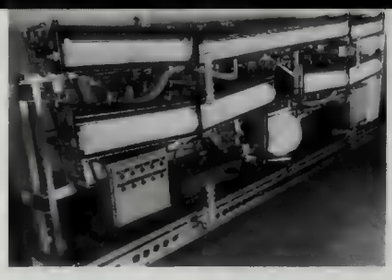
For more information, write item numbers on Reader Service Cards.



397. Wallbed system
Sico introduces an attractive wallbed system to improve both the functionality and livability of today's home. Its "Power Pak" fingertip controls are said to require virtually no more effort than it takes to open or close a door or desk drawer. The furniture line is available in black, natural oak woodgrain, white, and almond. Sico, Inc., Minneapolis.



398. Compact dishwasher
Where space is a premium, Miele Slimline dishwasher combines upscale features such as a stainless-steel interior, three wash arms, quiet operation, and a cutlery tray with surprisingly large capacity. This 17 1/2-in. wide dishwasher fits snugly into small spaces. Miele Appliances, Inc., Somerset, N. J.



399. Automatic window washer
A custom-designed automatic window washer for highrises enables buildings to be washed at least eight times a year. All of the building's vertical exterior is washed, not just the windows. The operator remains safely on the roof of the building. SteepleJack, Inc., Minneapolis.



400. Refrigerator/freezer
Traulsen & Co introduces ULTIMA, a 48-in. wide refrigerator/freezer for homeowners who want a professional-quality unit. It features two self-closing, full-length doors, and stainless-steel interior and exterior construction. Options include custom-framed plastic laminates on the cabinet exterior. Traulsen & Co., College Point, N. Y.



401. Custom cabinetry
Rutt's new Empire style cabinetry, shown here configured as a home theater system, features doors with mitered frames, solid center panels, cabinets with quintel-mullion doors, beveled glass, diamond-shaped details, and ornamented drape pulls. Available in a variety of woods, finishes and colors. Rutt Custom Cabinetry, Goodville, Pa.



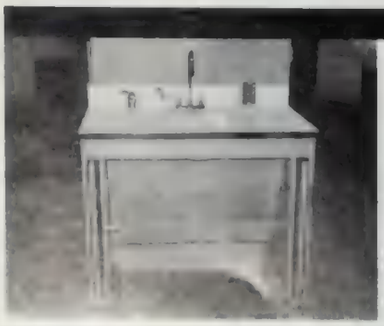
402. Store fixtures
Mero presents store fixtures with maximum flexibility and a minimum number of parts. Each system fully integrates with the others, supplying the designer with an extensive library of possible solutions. Features a variety of finish and material options and a broad line of accessories. Can be reconfigured at minimal cost. Mero, Germantown, Wis.



403. Mailflow systems
Kwik-File offers innovative mailroom design. Components have beveled shelf fronts, self-adhering label holders, rounded corners, PVC edging that prevents peeling, chipping and breaking, recessed door handles, and three riser heights, all in one-piece sorter construction with custom design capabilities. Kwik-File, Inc., Minneapolis.



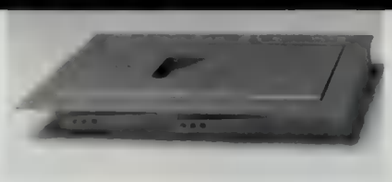
404. Kitchen cabinetry
Snaidero's newest Italian design has the look of fine furniture. It has a melange of laminates, woods, lacquer finishes, restful pastels, and glass doors. Worktops are covered with scratch-proof, impact- and acid-resistant laminate, and door hinges with built-in springs that permit the doors to be perfectly adjusted. Snaidero International, Los Angeles.



405. Adjustable table



406. Chef-style range
Wolf Range offers redesigned lift-off burners and drip pans for their Gourmet Series. Also available are chef-size porcelain ovens, large-capacity spillover bowls, thermostatically-controlled commercial-grade griddles and infrared broilers. Gourmet Series stoves come in black and stainless steel. Wolf Range, Compton, Calif.



407. Security panel
Model LHSP offers maximum security for prison and detention facilities, with a 3/16-in. plate-steel door, box-formed and welded (to discourage tampering), with 2- by 3- by 3/16-in. steel angle frame. The hingeless design improves security to areas where removal of doors is necessary. J. L. Industries, Bloomington, Minn.



408. Compact kitchens
The high-pressure-laminate kitchens feature all-steel cabinets, and resist moisture absorption, warping, and delamination. The baked-enamel finish can be color-coordinated to the laminate selection and can match every color and pattern offered by Wilsonart, Formica, and Nevamar. Dwyer Products, Michigan City, Ind.

* *Product Data on CAD disk*

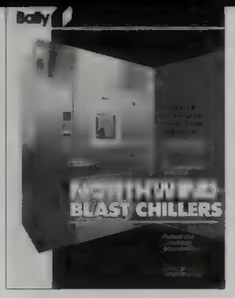
For more information, write item numbers on Reader Service Cards.



409. Integrated dishwashers
The Bosch "Integrated Series" represents the optimum design approach for fitting the dishwasher into the kitchen environment. A four-color brochure describes measurements and cabinetry styles so that designers can tailor dishwashers to match the grid of the kitchen design. Robert Bosch Corp., Broadview, Ill.



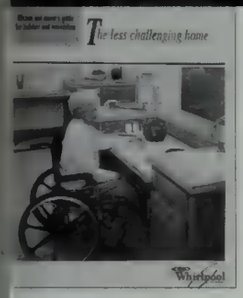
410. Custom kitchens
A four-color, 32-page booklet displays traditional, "Old World", and contemporary custom-made kitchen cabinetry styles, finishes, and new-product offerings. Attractive rooms show the latest in functional and decorative hardware, door styles, and overall new design applications. Heritage, New Holland, Pa.



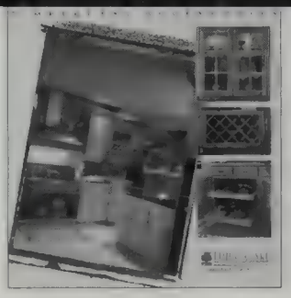
411. Commercial refrigeration
Bally Northwind Blast Chillers cool quickly and safely without freezing to keep foods safe and meet demanding HACCP requirements. A two-page brochure describes units, contamination hazards, and a probe and monitoring system. Appropriate for institutions, commercial operations, and large restaurants. Bally Engineered Structures, Inc., Bally, Pa.



412. ADA complaint pay phone
A four-page brochure is offered to help architects and builders comply with the accessibility requirements outlined in Title III of the Americans with Disabilities Act. Telephone kiosks designed to comply with ADA requirements for new and existing pay-phone installations are described. Fortec, Inc., Waukesha, Wis.



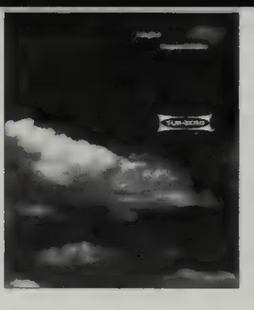
413. Appliance planning
The Less Challenging Home, a guide for architects, builders, and remodelers, describes how careful planning and proper selection of kitchen and laundry appliances can meet the needs of people with physical or mental limitations. The 24-page booklet has many good suggestions and provides diagrams. Whirlpool, Benton Harbor, Mich.



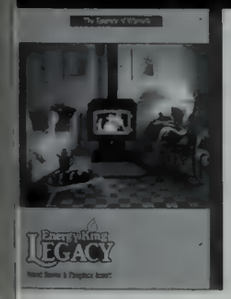
414. Kitchen accessories
Customized kitchens with fine wood cabinetry and accessories take advantage of every inch of available space. An eight-page brochure gives a sampling of cabinet styles, wine racks, shelving, drawers, glass doors, moldings, and decorative hardware. Timberlake Cabinet Company, Winchester, Va.



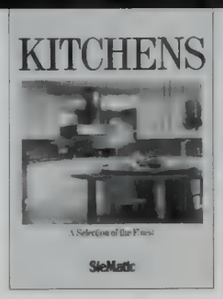
415. Custom cabinetry
A 45-page Design Guide highlights an elegant selection of traditional, country, and contemporary-kitchen cabinetry. And a 21-page product guide, gives a general overview of accessories including door styles, storage options, finishes, and hardware,Wood-Mode Cabinetry, Kreamer, Pa.



416. Discreet refrigeration
The producer of built-in refrigeration equipment offers a 20-page booklet describing high-quality custom-designed units. Blending into the overall room, the products fit flush with 24-in. deep kitchen cabinets. Decorative panels complement decor. Spec guide is offered to architects. Sub-Zero Freezer Co., Inc., Madison, Wis.



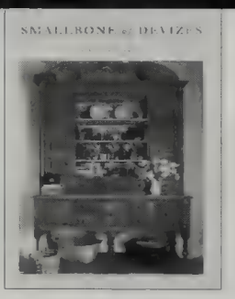
417. Wood-burning stoves
Energy King introduces a redesigned combustion system in its Legacy line of non-catalytic wood stoves and fireplace inserts. EPA-approved product refinements result in appliances that burn cleaner and produce more heat. Information available for different sizes and models. Chippewa Welding, Chippewa Falls, Wis.



418. Kitchen interiors
A fold-out poster introduces SieMatic's modern, European range of kitchen designs and accessories featuring interiors and quality storage units. The SieMatic Kitchen Book with over 180 pages of kitchen interior design suggestions is also available. SieMatic Corp., Trevose, Pa.



419. Hands-free wood stove
The Firelight is the only wood stove to offer hands-free operation of the top-loading door. Top door is opened and closed by foot pedal located beneath the ashlip. Equipped with oversized ashpan. Capable of heating 1,500-sq-ft space. Accommodates 22-in. logs and burns up to 12 hours. Jotul USA, Inc., Portland, Me.



420. English cabinetry
Smallbone offers new Pilaster Collection brochure. Hand-painted kitchen cabinetry influenced by classicism of the 18th century Georgian period displays fitted and free-standing pieces such as larders, bacon settles, and dressers. Full range of neutral colors, color washes, and translucent glazes available. SieMatic Corp., Trevose, Pa.

Product Data on CAD disk

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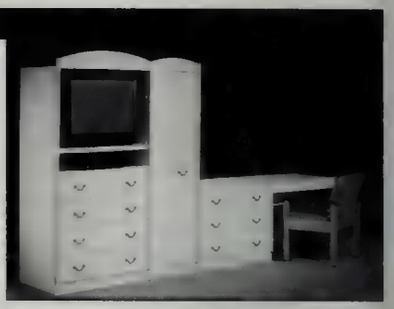
421. Adjustable work surfaces
Interaction Counterforce tables have a handle-operated mechanism that adjusts to heights anywhere between 24 to 41 in. and a built-in weight adjustability range of up to 100 lb. Eight table-top shapes and 18 laminate and 28 veneer colors are available. The Knoll Group, New York City.



422. Rotating cabinets
Inspired by the "lazy susan," Twinfile cabinets have rotating interior-storage compartments. The units come in six sizes and can be stacked to create room partitions. A range of colors is available. TAB Products Co., Palo Alto, Calif.*



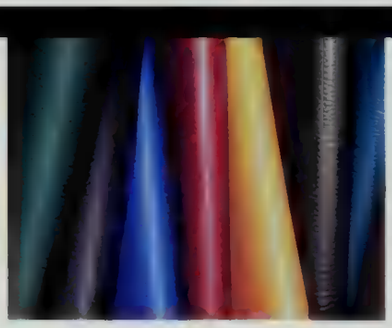
423. Window blinds
SheerView horizontal 1-in.-wide aluminum blinds have a random pattern of pin holes that allows light to filter through metal slats, while providing privacy and glare control. The blinds come with a steel headrail and a concealed mounting system. Levolor Corp., Sunnyvale, Calif.



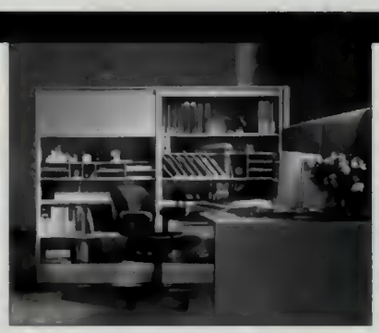
424. Casegoods
A drawer unit, wardrobe, desk, and television stand are part of the Concert collection of casegoods and seating intended for healthcare use. Cabinets have swivel shelves for easier patient use and contoured edges. Health Design, Div. of Brayton International, High Point, N. C.



425. Patient-care furniture
Patient-care furniture in four styles—Cambridge, Concord, Ashby, and Carlisle—features laminate tops, solid-oak drawer fronts, hardwood oak veneer surfaces, smooth-action drawer slides, and drawer pulls said to be particularly easy to grasp. Adden Furniture, Inc., Lowell, Mass.



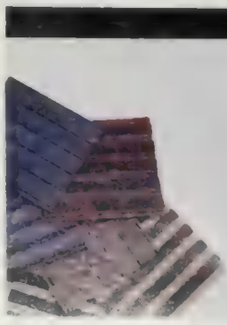
426. Faux leather
Watershed, made from a biodegradable water-based urethane, is intended to resemble leather. Available in 30 colors, the material is water-resistant and said to be easy to clean and maintain. Watershed costs $2.89 per sq ft. DesignTex, Woodside, N. Y.



427. Cabinet system
The Liasion cabinet system was designed by Jean Beirise. Cabinet tops and bottoms contain raceways for routing voice and data cables. The units are 15 1/2-in. deep and come in four different heights and three widths. Herman Miller, Inc., Zeeland, Mich.*



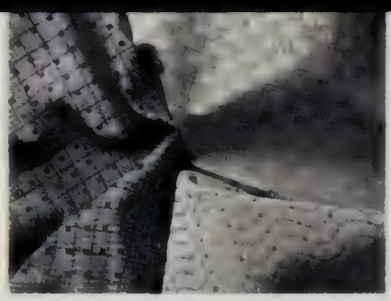
428. Benches
Designer Scott Regenbogen drew inspiration from a wide variety of sources—ranging from Greek Revival to American Arts & Crafts—for his East Side Collection of seven benches. The benches are intended for use in lobbies, waiting rooms, and executive offices. HBF, Hickory, N. C.



429. Tablet-arm seat
[illegible] manufacturer's [illegible] chair [illegible] to coordinate [illegible] or [illegible]



430. Office furniture
The manufacturer's reconfigurable office furniture is intended for use in reception areas, cafeterias, and conference rooms. A variety of colors, finishes, and coordinating office accessories is available. Mero [illegible]ster [illegible]s Group, Germantown, Wis.



431. Fabrics
Fabrics designed by Debra Lehman-Smith (shown) are part of the 3 By 5 (three fabrics from five designers) collection. The collection includes 17 designs in 175 colorways, with prices ranging from $25 to $75 pr yd. F. S. Contract, Div. of Schumacher, New York City.



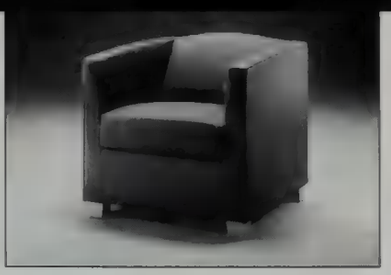
432. Office partitions
Since the stackable panels of the manufacturer's Interior Options Program do not require an inner-frame structure, they can be added or removed as necessary. Panel surface treatments include textiles, laminates, and woods. Panel trim comes in wood or metal. JG Furniture Systems, Inc., Quakertown, Pa.*

** Product Data on CAD disk*

For more information, write item numbers on Reader Service Cards.



433. Task chair
The new TEChair II task chair has adjustable arm height and width; seat height and angle; and back height, depth, and angle. American Seating Company, Grand Rapids, Mich.



434. Wood-framed furniture
The Jane Family of wood and upholstered chairs (in arm and armless versions), two- and three-seat sofas, stools, and tables was designed by David Ritch and Mark Saffell. Frames are of maple and ash. Charlotte Co., Inc., Belding, Mich.*



435. Contract-application fabric
The manufacturer's new collection of fabrics for contract use includes Darien Grospoint, made of 100 percent cotton. Yarn in two different sizes and a variety of colors visually enhances the traditional grospoint construction. Brunschwig & Fils, New York City.



436. Shade headrail
A gently curved headrail is a recent addition to the Lightlines Designer Series of micro- and mini-blinds. The headrail can accommodate valances and slats without gaps between the top slat and the headrail. It comes with hidden mounting brackets. Hunter Douglas Window Fashions, Upper Saddle River, N. J.



437. Lounge furniture
Overlay is a seating series designed by Brian Kane for health-care applications. A variety of wood types can be specified to cap armrests and protect the upholstery. Coordinating tables and sofas are also available. Wieland Furniture, Grabill, Ind.



438. Occasional tables
Los Angeles architect David Kellen's collection of tables has tops in rectangular and tri-arc shapes. Tops come in a variety of materials, including Venetian plaster, Corian, and wood veneer. Atelier International, Long Island City, N. Y.



439. Flame-resistant fabrics
Fahrenheit is a collection of Class A flame-resistant woven upholstery fabrics made with a Monsanto modacrylic fiber. The collection includes 12 patterns and 212 colorways, which are treated with a Teflon soil and stain repellent. Douglass Industries, Inc., Egg Harbor, N. J.



440. Artificial "windows"
ARTificial Windows is a collection of wood-frame light boxes containing back-lit photographs of over 160 different scenes, including golf courses, beaches, gardens, and snow-capped mountains. ARTificial Windows, Div. of Vemco Corp., San Dimas, Calif.



441. Sun shading
Sun shades made of fiberglass scrim can be ordered with custom supergraphic designs. The shades' ability to admit light is unaffected by the designs, while the fire-resistant scrim is said to minimize interior heat gain, according to the manufacturer. Sol-R-Veil, Inc., Bronx, N. Y.



442. Ergonomic stool
The Protilt Two, a recent addition to the manufacturer's line of ergonomic seating, is an adjustable height stand/sit stool intended for people who work standing up. By allowing users to partially sit as needed, the stool is said to relieve pressure and weight on backs, legs, and feet. BioFit Engineered Seating, Waterville, Ohio.



443. Desk accessories
Decathlon, a collection of desk accessories that includes different-size trays, a calendar, and pencil cup, was designed by Ross Lovegrove and Julian Brown. The rubber-like plastic "tread" of the pieces was inspired by the design of athletic shoes. The Knoll Group, New York City.



444. Patient chair
The Wedgewood patient chair has curved arms and legs made of 22 plys of hardwood laminations. Solid hardwood keystones give additional armrest support. A curved backrest is intended to provide lumbar support. Sauder Manufacturing Co., Archbold, Ohio.

▪ *Product Data on CAD disk*

For more information, write item numbers on Reader Service Cards.



445. Tables
Intended for use in conference rooms, corporate cafeterias, and training rooms, the Derby table has three base elements--column, base foot, toe pad--that can be specified in one finish or a combination of colors. A variety of different-shape tops is available. Vecta, Grand Prairie, Tex.



446. Chair
New options have been added to the Uni chair designed by Werther Toffoloni, including arms, two stacking versions, and additional back-rest options. Made of solid beechwood, the chair frame is secured by cast-aluminum inserts bolted through legs and steel frame. Atelier International, Long Island City, N. Y.



447. Seating
A new seating collection designed by Lisa Smith is intended to coordinate with the manufacturer's collection of casegoods. Ascent Seating has exposed maple legs; upholstery comes in a variety of textiles and leathers. Mueller, a Haworth Co., Holland, Mich.



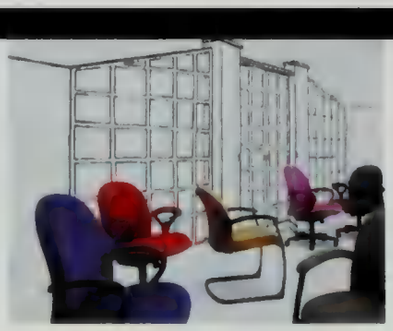
448. Library furniture
The components of this modular library carrel can be assembled in linear or pinwheel configurations. Made of solid hardwood, the carrels are constructed using traditional joinery methods. Thos. Moser Cabinetmaker, Inc., Auburn, Maine.



449. Fabric
Montpellier is a silk chenille fabric intended for use in high-end hospitality and office settings. A multi-colored warp gives the fabric a subtle color contrast. Seven colorways are available. Brunschwig & Fils, New York City.



450. Seating
CAD drafting and layout services are used to fit the manufacturer's chairs and stools within a client floorplan and budget. Coordinating counters and millwork can also be included on three-dimensional proposed installation views. Plymold Seating, Kenyon, Minn.*



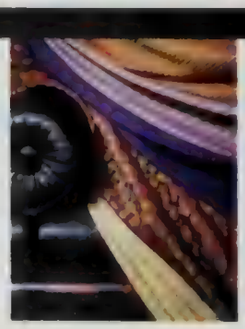
451. Office seating
The Accolade office chair comes in high-back, mid-back, and sled-base versions. The height and tiltof the seat and back can be adjusted independently and arm rests can be positioned at one of five different heights. Haworth, Inc., Holland, Mich.*



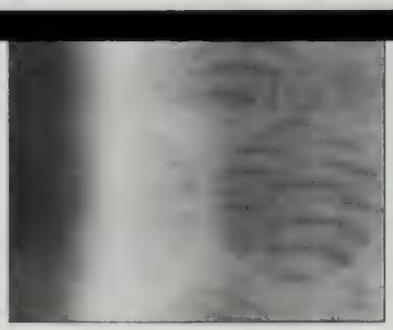
452. Office furniture
The Orfeo furniture system, designed by Atkinson Design Associates, includes freestanding, beam-linked desks, storage units, boardroom tables, lighting, and paper-storage accessories. A concealed steel chasis provides wire management. Kimball Europe, London.



453. Fabric
Designed by Tim Van Campen American Mosaic is a textile collection of five different intricate computer-generated patterns intended for contract use. A variety of colors is available. The Knoll Group, New York City.



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Designed by Tim Van Campen American Mosaic is a textile collection of five different intricate computer-generated patterns intended for contract use. A variety of colors is available. The Knoll Group, New York City.



455. Casements
The new Bubble Dot pattern is intended to resemble bubbles floating to the surface of a champagne flute, according to the manufacturer. Made of silk, the fabric is woven in France at widths of 51 in. Gretchen Belinger, Inc., Cohoes, N. Y.



456. Airport seating
Raphael Lounging, designed by Roger K. Leib, was recently installed in public areas of San Francisco Airport (above). Armrests use a dense, self-skinning foam said to resist punctures. Add Interior Systems, Inc., Los Angeles.

* *Product Data on CAD dis*

For more information, write item numbers on Reader Service Cards.



457. Office furniture
The Attache collection of office furniture includes desks, workstations, storage units, and credenzas (shown). Designed by Lauren Rottet and Richard Riveire, the system is based on a modular grid, allowing a variety of combinations. The pieces come in the manufacturer's standard woods and 12 Chemcolor finishes. Halcon, Stewartville, Minn.



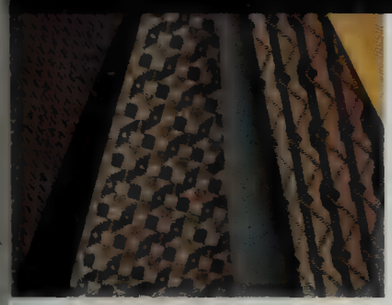
458. Streamlined office
A collection of office furniture designed by Marina McDonald Rezek is constructed of maple, with polished-aluminum handles. Desks can be ordered with chrome or stainless-steel bases and 3/4-in.- or 1-in.-thick glass tops. Jazz Furniture & Lighting, Inc., Los Angeles.



459. Adjustable worksurface
WorkZone is a collection of tables that adjust to heights between 23 and 34 in. The tables can be ordered with coordinating privacy screens and horizontal and vertical wire-management components. Post-formed or bull-nosed edges can be specified. KI, Green Bay, Wis.



460. Banners
Industrial artist Koryn Rolstad works with architects and interior designers to create installations for large public spaces and atriums. Rolstad's installation in a corporate cafeteria (above), for example, is constructed of fiberglass rods, air-brushed stainless-steel mesh, and air-brushed spun web polyester. Bannerworks, Inc., Seattle.



461. Fabrics
Jazz Masterworks is a fabric collection that includes Ragtime, Rhythm and Blues, and Basie patterns. All patterns are constructed of a cotton and rayon blend. A selection of 30 coordinated colors is available. Arc-Com Fabrics, Inc., Orangeburg, N. Y.



462. Guest chair
The Oberlin chair designed by Michael Vanderbyl has a perforated plywood backrest. The chair is 22 1/2 in. wide, 23 1/4 in. deep, and 34 in. high. It comes in maple or cherry, with the manufacturer's standard finishes. Bernhardt Furniture Co., Lenoir, N. C.



463. Upholstery collection
Surface Play is a line of nine upholstery fabrics designed by Laura Guido Clark. The collection includes cotton/polyesters, cotton/polypropylenes, cotton/polyester/rayons, and all-cottons in a variety of constructions. Carnegie, Rockville Centre, N. Y.



464. Office casegoods
Nines, a wood casegoods line, is based on a nine-inch-square module. Designed by Don Brinkmann of Gensler Associates, the collection of desks, credenzas, storage units, conference and occasional tables, is available in 10 veneers and five colors. Stow Davis, Kentwood, Mich.



465. Side chair
Player is a moderately priced stackable side chair that can be ordered with or without armrests. The lightweight frame is available in chrome finish or a choice of seven colors. Steelcase, Inc., Grand Rapids, Mich.



466. China
Italian designer Ettore Sottsass's new collection of china tableware for manufacturer Alessi is called "La Bella Tavola" or the Beautiful Table. The collection includes coordinating coffee and tea pots, milk jugs, and sugar bowls. The Markuse Corp., Woburn, Mass.



467. Seating
Originally designed for the lobby of the Holy Cross Hospital in Silver Spring, Maryland, Ariascape seating was designed by Peter Danko in two- and three-seat units. Other of Danko's body-conscious designs are included in the design collection of New York City's Museum of Modern Art. Danko, Clinton, Md.



468. Fiber art
Jodi Kanter's custom-designed fiber artwork for interior spaces includes an installation at B. F. Goodrich Aerospace, in Akron, Ohio (shown). Kanter says her fiber art not only visually enhances a corporate lobby, it also provides acoustical benefits. Jodi Kanter Custom Designs In Weaving, Lyndhurst, Ohio.

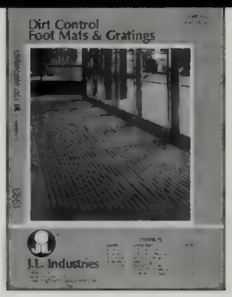
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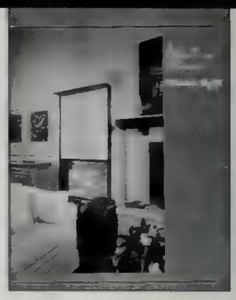
469. Window hardware
A 12-page color brochure outlines the manufacturer's line of manual and motorized hardware for draperies, vertical blinds, soft shades, roller blinds, skylights, and panel-moving systems. Silent Gliss, a curved and motorized product custom-made for each application, is highlighted. Silent Gliss USA, Inc., Loganville, Ga.



470. Seating
Tandem seating, originally designed in 1962 for Chicago's O'Hare International Airport by Charles and Ray Eames, is the focus of a four-page color brochure. Tables may be interspersed with the seats in a variety of configurations up to 10 units per support beam. Herman Miller, Inc., Zeeland, Mich. *



471. Mats and grating
Roll-up mats and installed gratings intended to control dirt and eliminate slippery wet floors are described in a four-page color brochure. Specifications and insert details are included, showing thin-slab and drain-pan applications. J. L. Industries, Bloomington, Minn.



472. Insulating shades
Window Quilt, a five-layer composite of insulation, vapor barrier, and protective covering is said to eliminate window drafts and heat loss by as much as 80 percent, according to a six-page color brochure. Ten colors and two quilting patterns are available. Shades operate manually or with an electric motor. Northern Cross Industries, Brattleboro, Vt.



473. Office seating
A 62-page brochure outlines the manufacturer's line of office chairs, including well-known designs by Richard Sapper, Charles Pollock, Niels Diffrient, Ettore Sottsass, and Frank Gehry. A selection of finishes and upholstery fabrics is pictured. The Knoll Group, New York City.



474. Office systems
New additions to a line of office furniture are reviewed in a 12-page color brochure, including a midline electrical system, an alternative to panel-base raceways. Provides power at the work-surface level and cluster corner shelving. Panel Concepts, Inc., Santa Ana, Calif.



475. Metal furniture
A 26-page color brochure outlines the manufacturer's collection of metal furniture suitable for indoor and outdoor use. Designs with frames of rectangular steel tubing, welded flat steel, and tubular steel coated with a polyester-epoxy powder finish are shown. Sizes and colors are listed. Continental Creative Sales, Inc., Garfield, N. J.



476. Upholstery fabric
A specification guide outlines the ben efits of Zeftron 200 nylon upholstery fabric, said to be highly fade- and dirt-resistant. Abrasion resistance, performance, cleaning, and environmental data is included. BASF Corp., New York City.



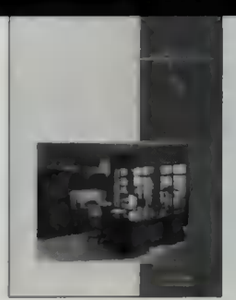
477. Contract furniture
Commemorating the company's 25th anniversary, a new catalog reviews an entire product line, including lounge seating, office seating, and tables. Dimensions of all products are listed, as well as available finishes and upholstery fabrics. Brayton International Collection, High Point, N. C.



478. Contract collection
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479. Office furniture
Desks, seating, storage, and a variety of "work tools" for office or home-office use are outlined in a 52-page catalog. Targeted at small businesses, this new division of Steelcase promises 48-hour or five-day delivery and flexible lease plans. Turnstone, Wyoming, Mich.



480. Modular casegoods
New literature on Spec-Wall components describes additional panel-edge options, including radius and beveled edge detailing. A wire-management harness provides computer connectors and isolated circuits for computer use, as well as standard electric and telephone hook-ups. Dar/Ran Furniture Industries, High Point, N. C.

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For more information, write item numbers on Reader Service Cards.



481. Tensile-structure fabric
Sheerfill Architectural Membrane, a woven electrical-grade Fiberglas substrate coated with Teflon PTF, has sheltered the La Verne University library (The Shaver Partnership, architect) without problems for over 20 years. Noncombustible per E-136, fabric passes NFPA 701; it is highly translucent while reflecting most solar heat. Chemfab, Buffalo, N. Y.



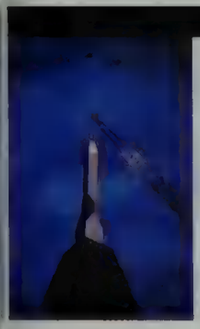
482. Clearspan skylight system
A Michigan college building by Hobbs+Black, architect, uses a very-long-span insulated translucent skylight that combines insulated fiberglass panels with a pre-engineered aluminum structural system. The manufacturer provides site-specific services from design to installation. Structures Unlimited, Inc., Manchester, N. H.



483. Adaptable habitat
A climate-controlled structure with a sloping glass roof—whose 10-ft-high glass front wall can withstand the impact of a 300-lb panda bear—illustrates the adaptable nature of Skytech's solarium and skylight systems. The manufacturer provides design, fabrication, and installation services. Skytech Systems, Bloomsburg, Pa.



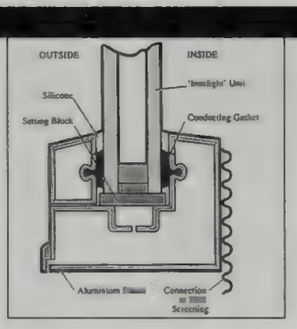
484. Modular detention units
Modularized detention units are factory-built of steel and rolled into place on-site. Assembled modules may consist of up to six cells, and weigh one-third as much as a typical concrete cell. Units come pre-wired and pre-plumbed. Cell fronts, chase walls, and wall panels are also available. Hopeman Correctional Systems, Waynesboro, Va.



485. Fiberglass structures
A 37-ft-tall, all-fiberglass spire atop the NationsBank building in Atlanta houses communications antennae. The spire illustrates how Durashield foam-core panels and Extren structural I-beams and angles can be used together to prefabricate architectural structures that are transparent to electromagnetic waves. MMFG, Bristol, Va.



486. Amazing aviaries
Artist William Bateman Ruffner designs and constructs large, functional aviaries that make reference to a number of styles, including Victorian, Post Modern, and Art Deco. The cages are handmade of brass, bronze, copper, and steel, in a series of limited editions or to order (without birds). British-By-Nature, Beverly Hills.



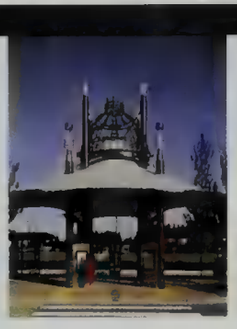
487. EMI-proof glass
Datastop glazing safeguards information held on computers from unauthorized interrogation from the outside, interference, or loss due to extraneous electronic noise, as might be produced by radar. No metal mesh is embedded in the glass, and impact resistance and light transmission are high. Pilkington Architectural, Tampa, Fla.



488. Invisible speaker panels
Invisigrille integrated acoustical speaker panels match Celotex's Cashmere line of lay-in ceiling panels. A factory-painted fabric covers the opening in the panel where the speakers are mounted. The fabric is said to coordinate well with the textured surface of the panels, which resemble fine fabric. Celotex Corp., Tampa, Fla.



489. Super-insulating solarium
This maker's solarium structures can now be ordered with R-10 Maxi-Glas, developed exclusively for flat-glass applications. This 1 1/8-in.-thick, R-10 configuration has two layers of Heat Mirror 77 film suspended within Krypton gas; warm-edge spacers give the units additional insulating capability. Sunshine Rooms, Wichita, Kan.



490. Tensile structures
The transit-bus depot in Northgate, Washington, designed by the Zimmer Gunsel Frasca Partnership, is an example of ▪ Birdair Tensioned Membrane Structure. The Teflon-coated fiberglass structures can be used for many building types, including small-scale sports, performing arts, and transportation facilities. Birdair, Inc., Amherst, N. Y.



491. Over-aisle storage
Over-aisle Mezzanine Systems allow floor space to be created in normally wasted space. The units come in 8-ft or 10-ft heights, and can be ordered with several floor-grating styles and ▪ number of accessories, such as railings, drop gates, and stairways. Load-bearing capacity of the units is 150 pfs. Equipto, Aurora, Ill.



492. X-ray barriers
Clear-Pb Lead-plastic X-ray Barriers and Windows are shatter-resistant, transparent plastic imbedded with 30 percent lead, by weight. It replaces the traditional tiny lead-glass windows with panoramic views of the X-ray room, using either permanently installed sheets of plastic, or temporary barriers. Nuclear Associates, Carle Place, N. Y.

▪ *Product Data on CAD disk*

13 • SPECIAL CONSTRUCTION Literature

For more information, write item numbers on Reader Service Cards.



493. Radio-frequency shielding
A computerized design manual—software on 3.5-in., PC-compatible disks—is offered to assist the architect specifying all-fiberglass structures for radio-frequency shielding applications. It supplies complete beam, loading, shear, and deflection data for FRP beams and decking components. Morrison Molded Fiber Glass Co., Bristol, Va.*



494. Wine cellars
Working from supplied data (the number of wine bottles needing storage) Kedco can design bins, cabinets, racks, and refrigerated units to an architect's specifications. Brochure illustrates storage applications from a kitchen closet to large retail stores and restaurants. Kedco Wine Storage Systems, Farmingdale, N. Y.



495. Interior spaceframes
A four-color, eight-page 1994 catalog describes and illustrates MERO spaceframes, trussing and mezzanines, aluminum display cases, ceiling systems, and trusses. Details, applications, and design services are featured. MERO Systems Group, Germantown, Wis.



496. Acoustical environments
Noise-absorbing and controlling components engineered primarily for music-education facilities are explained. A questionnaire highlights the design parameters vital to insuring a comfortable, productive environment for any type of music-oriented application. Wenger Corp., Owatonna, Minn.



497. Motorized pool cover
Automatic covers of reinforced vinyl are custom-fit into unobtrusive tracks to form a tight, protective, and insulating cover over indoor and outdoor swimming pools. Can fit any straight-edge pool up to 25- by 75-ft; a surface-mount universal track system accommodates curved and existing installations. Cover-pools, Inc., Salt Lake City.



498. Anechoic rooms
An 18-page illustrated technical brochure explains how over 40 years of expertise in building acoustic test facilities, including over 150 large and small anechoic (free field) and reverberation rooms, has developed sound-control products for any architectural application. Details design-assistance services. Industrial Acoustic Co., Bronx, N. Y.



499. Buildings ready-to-go
A color portfolio illustrates as-built applications of modular and mobile structures used as both temporary and permanent space for sales offices, branch banks, clinics, classrooms, detention facilities, and other customized adaptations. Structures may be designed to user's needs, or drawn from inventory. GE Capital Modular Space, Devon, Pa.



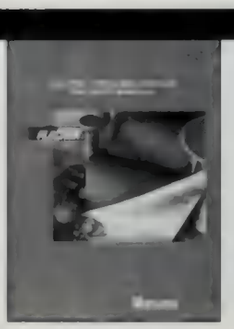
500. Clean-room envelopes
A color brochure explains how Unistrut can handle all aspects of clean-room construction, including walls, floors, ceilings, structural supports, and equipment hook-ups. Describes a full range of planning, construction, and technical-support services based on 40 years of experience. Unistrut Corp., Ann Arbor, Mich.*



501. Working kit show-and-tell
[illegible] design and [illegible] concrete [illegible] plantings, [illegible]



502. Daylit pavilion
A color catalog illustrates how translucent Danpalon panels, opening roof system, and perimeter walls and sliding doors of insulated, tempered, glass can turn an outdoor pool into a year-round recreational facility. Motorized-roof technology can also be applied to skylights or atriums. [illegible] International, Solar Structures [illegible], Mundelein, Ill.



503. EMI-shielding fabric
A brochure and CAD software provide architectural-design and installation data on Flectron metallized material. A metal-plated polyester or nylon fabric, Flectron comes in various constructions to shield across a wide dB range. Material supplied in continuous, cut-to-fit rolls; will not trap moisture vapor. Monsanto Chemical Co., St. Louis.*



504. Wood-framed solarium
One of several residential and commercial catalogs offered, an eight-page color brochure suggests the open and airy feeling made possible by a solarium addition. Woodhaven units are made of laminated pine or cedar, with exterior aluminum cladding, and may be add-ons or freestanding. Florian Greenhouse, Inc., West Milford, N. J.

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Products/Literature

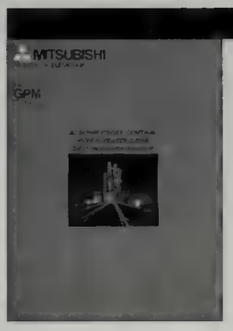
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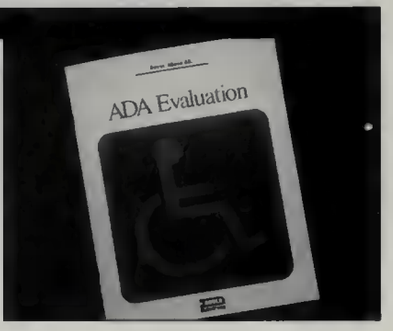
505. "Esthetic" escalator
The new TransVario escalator is said to work well as an architectural-design component. Glass balustrades fitted directly to handrails can be spot-lit for special effects; widely projecting stair ends add balance and greater safety without additional rails. Needing no drive chains and belts, space requirements are reduced. O&K, Newport News, Va.



506. Automated cable car
Computer-controlled transport handles difficult urban sites requiring tight curves and lightweight structures. Each POMA cable car holds 40 people, and can run at 22 mph up steep gradients. Multiple-jaw grips connect cars with traction cables integrated in the track; cars can reverse without maneuvering. POMA America, Inc., Grand Junction, Colo.



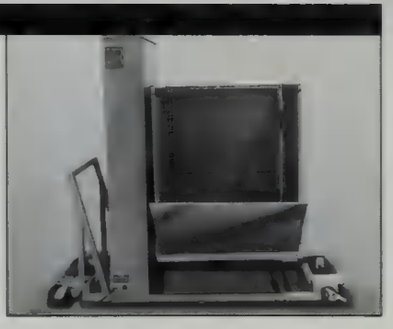
511. Quick and smart
Artificial-intelligence technology used in new elevator controls allows the system to make qualitative judgments based on immense databases of elevator-traffic information. Car-dispatching decisions are made on total travel-time needs of passengers, not just waiting time. Said to greatly reduce elevator downtime. MEC Elevator Co., Cypress, Calif.



512. Accessible elevators
Dover offers a new, "common sense" guide to evaluating existing elevators for ADA standards, and will answer specific questions an architect or building owner may have about any type of elevator upgrade. Dover Elevator Systems, Inc., Memphis, Tenn.



507. Battery-powered elevator
Model BP Elevette offers full and continuous operation during power outages. With a rated capacity of 500 lbs. it can travel a maximum of 50 ft at a speed of 28 fpm. Can be ordered with standard-wood or custom-built doors, in any combination of one, two, or three gates. Inclinator Company of America, Inc., Harrisburg, Pa.



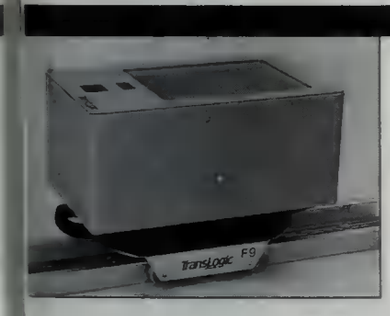
508. Portable platform lift
The Portable Unit Package for Porch-Lift vertical platform lifts provides the solution when only temporary access is required, as for special events in facilities with low-rise barriers. Unit can be stored out of sight. Lifting heights to 72 in.; loads up to 750 lbs. Access Industries, Inc., Grandview, Mo.



513. Economical elevator
The Excelevator, a 2:1 roped hydraulic residential elevator, is said to be as economically priced as most winding-drum lifts while offering smooth, gentle starts and stops. Rated for 700 lbs.; travels at 30 fpm to a maximum height of 50 ft. Four cab-design, wood-gate, and panel options. Waupaca Elevator Co., Inc., Waupaca, Wis.



514. Signal fixtures
A 16-page color brochure illustrates three significantly upgraded in-cab and lobby elevator-signal styles: Conventional, Vector, and Select. Each now meets all ADA requirements, and offers a variety of options to meet design and specification needs of architects and building owners. Montgomery Elevator Co., Moline, Ill.



509. Larger but smaller
A new utility container for use with this maker's Electric Track Vehicle material-transport system has a lower profile but provides 20 percent more usable cargo space than existing containers. System uses self-propelled vehicles that travel both horizontally and vertically along a network of aluminum track. Translogic Corp., Denver.



510. ADA-compliant controls
An overlay design allows the labor-saving re-use of existing wiring conduits and boxes when upgrading in-cab or hall-landing elevator-control panels to meet accessibility requirements. Metal parts can be specified in either bronze or stainless, in #4 and #8 finishes. A. D. A. Elevator Products, East Lansing, Mich.



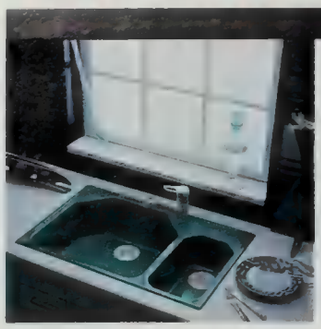
515. Passenger conveyors
Compaveyor booklet illustrates two types of conveyors that move a large volume of traffic: the RSE for inclines of up to 10-12 degrees, and the RSH for inclines of up to four degrees. A short pallet design is said to minimize space requirements; "no-axle" mechanics reduce operational noise. Schindler Elevator Corp., Morristown, N. J.



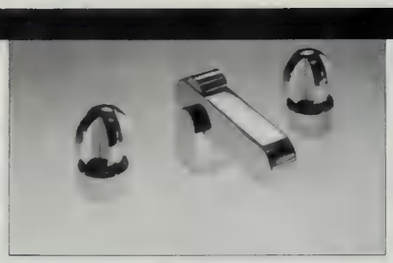
516. Stair-lift design
A newly revised guide has 40 pages with information on codes, layouts, installation photos, and site requirements. Stair- and platform-lift systems can be installed indoors and out, often with minimal impact on building appearance. Videos show lifts in use; specification text on disk. Garaventa (Canada) Ltd., Blaine, Wash.*

*Product Data on CAD disk

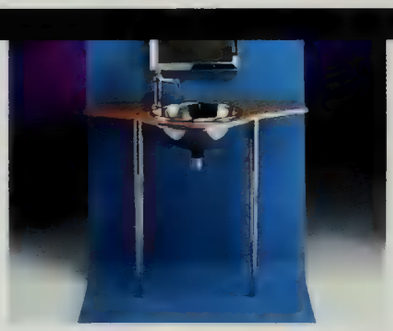
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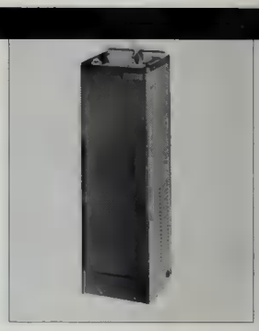
517. New sink colors
Blanco, a manufacturer of composite sinks, recently added two colors. Opal, which has a green metallic effect, has been added to the existing Silacron colors: white, almond, black and metallic. Polar, simulating white granite, has been added to the existing Silgranit colors: Impala, Sand, and Perla. Blanco, Blackwood, N. J.



518. Lavatory set
The sleek, sculptural Colorado lavatory set is finished in gold and polished chrome. The Colorado design is available for all functions in the bathroom, and in many other finishes. It is installed using the company's Quick-Prep valving system. Paul Associates, Long Island City, N. Y.



519. Contemporary sink
The Notorious sink, imported by Watercolors, Inc., is available in two versions: with tops of solid glass or veenered pear wood. The bowl, made of polished 18/8 stainless steel, is recessed into the console top, and supported by tapered legs finished in plated polished chrome. Watercolors, Inc., Garrison, N. Y.



520. Lead-free fountains
The Design 2000 Cooler with the WaterSentry Lead Removal System reduces soluble and insoluble lead content to .015 mg/L and removes more than 75 percent of free available chlorine. A monitor counts water usage and sounds an alarm when the filter needs to be replaced. Available in barrier-free models. Elkay, Oak Brook, Ill.



521. Auto-mixing valve
The Grohmix pressure-balance mixing valve allows the user to preset the water temperature as easily as setting a thermostat. Accurate to 1F, the temperature can be set anywhere in the 60F- to 100F-range. Hotter temperatures can be achieved by pushing an override button. Grohe America, Bloomington, Ill.



522. Barrier-free products
Danish designs for the physically challenged—hand rails, support arms, shower chairs, and adjustable fixtures—made by Pressalit A/S, are now being distributed by American Standard. Fittings are designed to combine functionality with an attractive, non-institutional appearance. American Standard/Pressalit, Piscataway, N. J.*



523. Hydronic heating system
The Radiant Floor Heating (RFH) system circulates 90F- to 120F-water through pipes encased in or stapled to the subfloor, producing economical, even heat without drafts or condensation. The manufacturer makes a complete line of RFH systems, such as floor, radiator, and hot water/air coil. Rehau, Inc., Leesburg, Va.



524. ADA-complying commode
The TurboFlush Model 4740 is 17 1/2-in. tall, and has an elongated bowl. It is made of vitreous china and uses only 1.5 gal. of water per flush. The toilet meets both ADA and water-saving requirements, and is suitable for hotels, office buildings, and hospitals, and homes and apartments. Briggs Industries, Tampa, Fla.



525. Adjustable showerheads
[illegible]



526. Ducted ceiling filters
The Cam-1 PX and BasiCam PX filter modules work for a full range of cleanroom applications. The Cam-1 PX, for cleanrooms as demanding as Class M1.5, has a damper which can be adjusted for precise laminar flow. The BasiCam PX is a damperless [illegible] for Class M6.5 to M4.5 applications. Farr Co., Los Angeles.



527. Bath fittings
German-made Groupe Jado fittings come in styles from traditional to contemporary, with a range of products in each design: lavatory faucets, shower sets, towel bars, and accessories. Pictured are Series Walz handles and spout, designed by New Yorker Kevin Walz. Jado Bathroom and Hardware Manufacturing Corp., Camarillo, Calif.



528. Electronic urinals
The Bardon Touchless Lite urinal features electronics and flush valve incorporated in a chamber integral to the urinal, and secured by a lockable lid. The unit uses only 1/2-gallon per flush, has a 14-in. extended rim to comply with accessibility requirements, and comes in 11 colors. Kohler Co., Kohler, Wis.

For more information, write item numbers on Reader Service Cards.



529. Anti-scald controls
Monitor-series valves prevent temperature fluxuation by automatically compensating for pressure surges before water leaves the pipes. Indicators eliminate guesswork in installation. High-end models offer bather-adjustible volume and temperature controls. Washerless. Delta Faucet Co., Indianapolis.



530. The fans of flight
The fantasy flyer is a replica of the F-4U World War II Corsair Navy Fighter Plane, with its 4-foot blades matching the original propeller scheme. An 8-ft applique applied to the ceiling is styled after the cockpit, wings, and landing gear. Combines air circulation and aerial assault. Three reversible speeds. Hunter Fan Co., Memphis, Tenn.



531. Gilt-edged faucet
A coat-of-arms and insets of 24-karat gold-plated brass distinguish the Cesello spread lavatory faucet uniform symmetrical design and ceramic-disk valve technology. Created by jewelry designer Antonio Bullo and manufactured by Sottini in Italy. Pictured above in chrome; also available in white. American Standard. Piscataway, N. J.*



532. Sub-surface heating
Fluid-circulating, corrosion-proof polyethylene tubing is installed below a floor, sidewalk, driveway, or playing field. When the liquid is heated, warmth rises to melt snow and ice or heat a room. Can be used under a variety of surfaces, from concrete to grass. Temperature can be adjusted from room to room. Heatlink, Grand Rapids, Mich.



533. Vanity
Countertop, mirror, cabinets, lighting, and fireclay pedestal lavatory are part of the new Trocadero Suite shown above. The unit measures 63-in. long by 24-in. deep by 82-in. high. Cabinets are available in maple veneer (shown) and in white; countertop is Avonite. Designed by Jacob Delafon of France. Dual-basin vanity an option. Kohler Co., Kohler, Wis.



534. Barrier-free bubbler
This ADA-compliant, wall-mounted water fountain is designed for both indoor and outdoor applications. The Double Bubbler is available only in granite-colored, weatherproof stone aggregate. Stainless-steel basin. Front push-button operation. Vandal-resistant. Freestanding models also available. Halsey Taylor, Inc., Oak Brook, Ill.



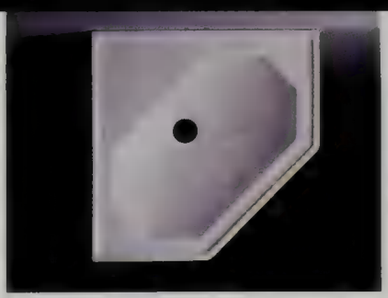
535. Baseboard accents
DesignLine offers rust-proof, extruded-aluminum baseboards in 19 colors for use with hot-water heating systems. Interchangeable inserts are available in over sixty colors. The baseboards rise 6 1/2-in. off the floor and mount close to the wall. Inserts can be matched to existing wallpaper or paint. Even heat distribution. Mestek, Inc. Westfield, Mass.



536. Outdoor fountain
A new pedestal-mounted drinking fountain offers dual-height bubblers to help comply with ADA requirements. Constructed of vibracast, reinforced concrete, with concrete guards over chrome-plated bubblers. Waste strainers allow for top-down access. Color tile insets are optional. For outdoor use only. Haws Drinking Faucet Co., Berkeley, Calif.



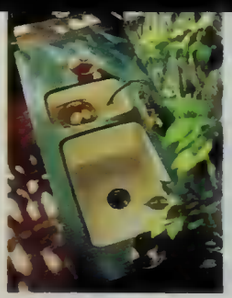
537. Undermount sinks
A new line of dual-basin sinks offers 18-gauge, stainless-steel construction in three styles: a traditional-style sink, a contemporary design featuring round bowls, and the largest model, two bowls of equal size (13 1/2-in. wide by 16-in. long by 5/8-in. deep). All with scratch-resistant finishes. Elkay Manufacturing, Oak Brook, Ill.



538. Powder-room basin
This compact, corner wash basin is designed to fit in small washrooms. Its German-made straight lines and balance are designed to recall the classic Bauhaus style. The Series 1930 line from Duravit features other pieces, including water-closet and bidet. Bathroom furniture is also available. Santile International Corp., Norcross, Ga.



539. Radiance
Five years in the making, the Entran 3 radiant heating system is designed to compete with up-market European systems. Four-layer hose construction. UL listed, Entran is rated to -40F and warrantied to 200F. Can be installed in cold weather. Corrosion-resistant. Brass valves and unions. Goodyear/Heatway. Springfield, Mo.

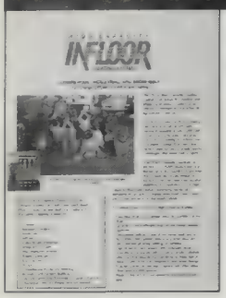


540. The kitchen sink
The Surell sink is constructed of cast, non-porous material and is solid throughout. Flushmount or undermount installation options. Available in two sizes: 16- by 21- by 8 1/4-in., and 16- by 10- by 6 1/2-in. Stain-, burn-, and scratch-resistant. Choice of six solid, pastel colors. Formica Corp., Cincinati.

Product Data on CAD disk

15 • MECHANICAL Literature

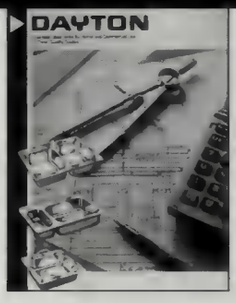
For more information, write item numbers on Reader Service Cards.



541. Snow melts
The Infloor radiant-heating system is designed for both under-floor interior heating and outdoor snow and ice melting. Water is treated with propylene glycol and heated. Indoors, 1/2-in. or 3/4-in. tubes allow for 1,000-ft circuits. Outside, a single manifold can distribute heat to 500-ft of tubing. Gyp-Crete, Corp., Hamel, Minn.*



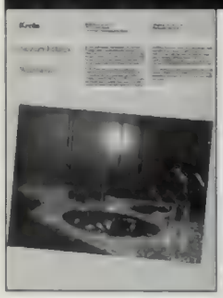
542. Bathing kits
Corian tub and shower-wall kits offer easy, five-step installation, even over existing tile. Three-wall tub and two-wall and three-wall showers are available. Grout-free, cornerless design. Non-porous surface discourages mold growth. Cut to specification. Choose from six colors. Color-matched trim molding. DuPont Co., Wilmington, Del.*



543. Steel sinks
A new eight-page catalog from Dayton pictures a builder's line of stainless-steel sinks. Single-and double-bowl models are offered in three grades of resilient, chip-resistant steel. A special section is devoted to ADA-compliant basins. The catalog also features a line of sink accessories designed to fit Dayton's sinks. Elkay, Oak Brook, Ill.



544. Bathroom chic
Designer lavatories, tubs, and toilets are featured in a new 24-page brochure. Most products are made of molded fireclay — a composite of clay, kaolin, talc, and pre-fired clay particles. Stain, scratch, and rust-resistant. Porcher, Chicago.



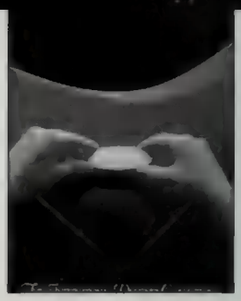
545. Sinks and faucets
Featured in a new 20-page, full-color catalog are 18 styles of faucets, 11 sink designs, and an array of kitchen accessories. Photos, specs, and schematic drawings of products. Some designed by Danish architect Arne Jacobsen and seen in the design collection of New York's MOMA. Kroin, Cambridge, Mass.



546. Vitreous china
Six water-save toilets, most flushometer-ready, are featured in a four-page catalog of commercial restroom products. Push-action, self-closing metered faucet. Wall-hung lavatories offer self-draining soap dishes. Urinals available in three sizes. ADA- compliant. Black and white photos. Gerber, Chicago.



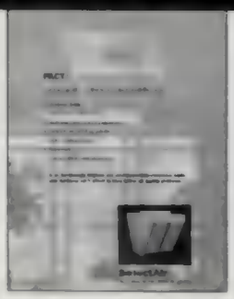
547. ADA faucets
A new brochure lists and illustrates faucets that comply with the Americans with Disabilities Act and ANSI accessibility standards. Featured products include a lever-operated, slow-closing metering faucet, and an offset grid strainer for installation in wheelchair-accessible sinks. Chicago Faucet, Des Plaines, Ill.



548. Whirlpools
A new catalog by a a well-known maker of whirlpool baths pictures a line of tubs, showers, and accessories. The smooth acrylic finish is stain-resistant. Thirteen models feature room for two. Variety of shapes, sizes, colors. Adjustable jets and slip-resistant bottom. Jacuzzi, Walnut Creek, Calif.



549. Bathroom plumbing
[illegible]



550. Air filtration
A new air-filtration system works with two filters. A particle filter traps smoke and dust while a carbon filter absorbs gases and chemical vapors. One unit cleans and circulates 250 cubic feet of air each minute. Designed for both suspended and sheet rock ceilings. Components are [illegible]. SelectAir, Charlotte, N. C.



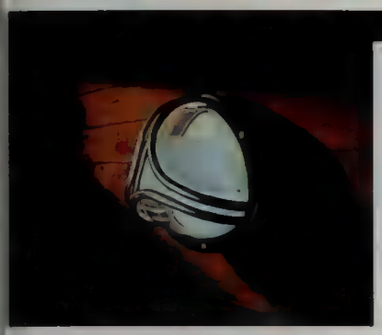
551. ADA-friendly shower
A four-page catalog features a shower, shower floor, and ramp built of solid-surface material to comply with ADA requirements. Included in the brochure are color photographs, charts, new and retrofit installation possibilities, and schematic drawings. Swanstone, St. Louis.



552. Wooden grills
Seven models of floor-set wood grills for forced-air heating systems are featured in a new catalog. Models are designed to fit into either wood or carpeted floors; flush or framed. Made of red or white oak, or hard maple. Custom woods and sizing available. Grill Works, Minneota, Minn.

* *Product Data on CAD disk*

For more information, write item numbers on Reader Service Cards.



553. Vandal-resistant sconce
The Columbus is a vandal-resistant wall-mounted fixture, with a cast aluminum housing, stainless-steel service struts, and a clear, UV-stabilized polycarbonate lens. An optically designed perforated-aluminum diffuser controls glare from compact-fluorescent or high-intensity discharge sources. Poulsen Lighting, Inc., Miami.



554. Bauhaus lamp
The NT709 table lamp has been created with a classic Bauhaus look, combining a gracefully tapered stem and delicate base. The 25-in.-tall lamp has been created in brushed or polished brass or chrome. Black or white lacquered-paper shades are available with a choice of white or gold linings. Nessen Lighting, Mamaroneck, N. Y.



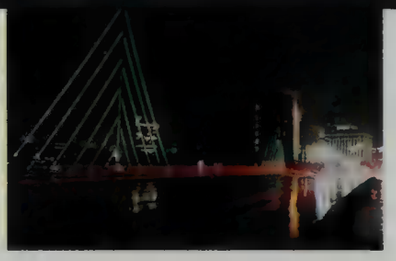
555. Low-profile sconce
The Surf sconce, designed by Piotr Sierakowski, projects only 3 1/2-in., meeting ADA requirements. It is available in mahogany or maple woods, or gold or silver leaf on maple, or may be custom finished. The sconce can be specified with either a 13W compact-fluorescent lamp, or a 60W T-lamp. Baldinger Architectural Lighting, Inc., Astoria, N. Y.



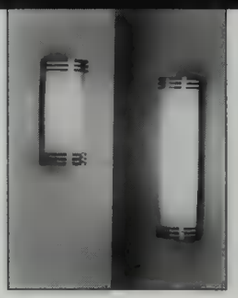
556. Invisible sound system
The Freespace bass module, when used with the FreeSpace suspended-ceiling adaptor, can be mounted above a suspended tile ceiling. The assembly meets UL-2043, which allows it to be mounted in plenum air spaces. The module directs its speakers through a conventional ceiling grille, and is otherwise invisible. Bose Corp., Framingham, Mass.



557. Tear-drop fixture
The Esplanade is designed to replicate the tear-drop-style streetlights common to the first half of this century. The 20- to 35-ft-high fixtures provide uniform pavement illumination, while the globe emits only a soft glow. Takes HID lamps up to 400W or incandescent lamps. Unique Solutions Div. of Holophane Co., Newark, Ohio.*



558. Fiber-optic illuminator
The 501 fiber-optic illuminator employs a 400W custom-designed metal-halide lamp, and is 30 times brighter than the illuminator originally introduced by this manufacturer in 1986. The illuminator uses quick-start ballasts and is UL-listed for indoor and damp outdoor locations. Fiberstars, Inc., Fremont, Calif.



559. Versatile sconce
The Meridian wall sconce is ideal for bath and vanity applications and in corridors, elevators, and lobbies. Fabricated from solid bar stock and fluted glass, the sconces are available with compact-fluorescent or incandescent lamping, and in brass or chrome finishes. ADA compliance information is available. Boyd Lighting Co., San Francisco.



560. UV floodlight
The scene above is illuminated by the WF400 Flood, a UL-listed UV floodlight that can illuminate fluorescent-painted objects up to 80 ft away. Constructed of corrosion-resistant aluminum, the fixture is ideal for film, video, display, and stage lighting. The manufacturer also provides special-effects design services. Wildfire, Inc., Los Angeles.



561. Mini wall pack
The MicroPro wall pack is suggested for security or perimeter lighting. The housing is made of molded polycarbonate, with an impact-resistant acrylic lens, and is available with HID or compact-fluorescent lamps in a variety of wattages. It can be mounted to recessed boxes or wired with surface conduit. Stonco, a division of Genlyte, Union, N. J.



562. Tiny halogen flood
The extremely versatile Micro-Flood is a compact exterior floodlight which has a die-cast aluminum housing and tempered-glass lens. The 12V model can be equipped with either a bi-pin halogen lamp or an MR16. The 120V model uses a T3 halogen lamp. Barn doors and fixed hoods are available. Kim Lighting, City of Industry, Calif.



563. Cast lighting bollards
The Sierra model of the StoneForms family of fiber-reinforced concrete lighting bollards is pictured above. The fixtures are designed to withstand the rigors of public environments without looking institutional. Lamping options include standard- and low-voltage incandescent, HID, and fluorescent. Woodform, Portland, Ore.



564. Recessed uplight
The RC luminaire combines the visual comfort of an indirect uplight with the convenience of a recessed fixture. The fixture uses a perforated-metal refractor basket, backed by an opal lens inlay to minimize fixture brightness. The fixture is available in three recessed sizes, and a surface-mounted model. Zumtobel Lighting, Inc., Garfield, N. J.*

Product Data on CAD disk

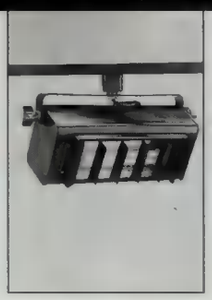
For more information, write item numbers on Reader Service Cards.



565. Low-temperature sensors
The CB-100 and CB-200 passive infrared occupancy sensors are designed to control lighting in cold, damp environments, as low as -40F for the CB-100 and 20F for the CB-200. The gasketed, watertight units can be used to interface with hvac, EMS, and monitoring systems in addition to lighting. The Watt Stopper, Inc., Santa Clara, Calif.



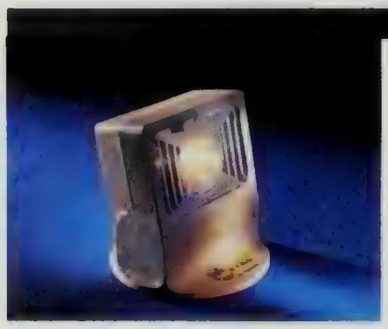
566. Task-lighting system
The System-2 task light is wall-mounted. It has a unique mid-arm joint which allows the light to be moved up and down and from left to right. The cool reflector-shade has a protective lens to reduce UV rays. The unit uses a 35W halogen lamp, and may be used with a quick-connect cord or hard wired. Luxo Corp., Port Chester, N. Y.



567. Fluorescent flood
The FF18 fluorescent wall washer uses 2-18W compact-fluorescent lamps to create broad washes of light. Ideal for galleries, museums, and showrooms, the six-pound fixture comes with an electronic ballast, removable louver, and an accessory holder that accepts glass color filters. Times Square Lighting, New York City.



568. LED exit sign
The Signature LED exit sign consumes only 6.5W of electricity while providing bright, uniform illumination of the 3/4-in. letter stroke. The LED lamps have a rated life of 25 years, virtually eliminating lamp replacement. The nickel-cadmium batteries and electronics are concealed within the sign housing. Lithonia Lighting, Conyers, Ga.



569. Mini-emergency light
A tiny emergency luminaire takes advantage of the super-efficiencies of a 5W halogen lamp and precision optics to rival the performance of larger units. The lights quick-mount to any 4-in. octagonal box. The maintenance-free sealed battery and precision charger are contained within the fixture housing. Yorklite Electronics, Inc., Bensalem, Pa.



570. Low-watt PAR lamp
A new 60W Capsylite PAR38 lamp with 17,500 CBCP and a 10-deg beam has been developed. In some circumstances it can be used to replace ordinary 150W PAR38s with 11,500 CBCP and 15-deg beam-spreads. The 3000K halogen lamps maintain full light output over their 2500-hour rated life. Osram Sylvania, Inc., Danvers, Mass.



571. Brass wall sconce
The sculptural, solid-brass wall sconce performs its uplighting task through the use of a 500W quartz lamp. A reflector is used to project light across the ceiling, and a backsplash shield eliminates the typical hot spot on the wall over the fixture. The mirror-polished fixture weighs 35 lb. Voight Lighting Industries, Inc., Leonia, N.J.



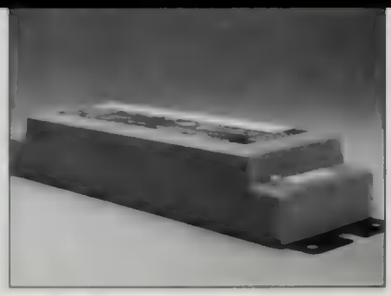
572. Low-brightness luminaires
The PC/2 family of low-brightness parabolic fluorescent luminaires uses proprietary technology to totally eliminate VDT glare, according to the manufacturer. New fixtures include 1- by 4-ft wall-wash and recessed luminaires, and a 1- by 2-ft one-lamp fixture. Metalux Division, Cooper Lighting, Elk Grove, Ill.



573. Adjustable medical light
The [illegible] roller is [illegible] ceiling-[illegible] halogen [illegible] lamp. [illegible] depending on job requirements. Litecontrol Corp., Haverhill, Mass.



574. Indirect luminaire
The Classica indirect luminaire uses lighted, perforated sides to balance brightnesses and eliminate VDT screen glare. The fixture is 13-in. wide by 3 1/2-in. deep, and can be lamped with 2, 3, or 4 T8 lamps or 2 10W or 50W compact-fluorescent lamps, depending on job requirements. Litecontrol Corp., Haverhill, Mass.

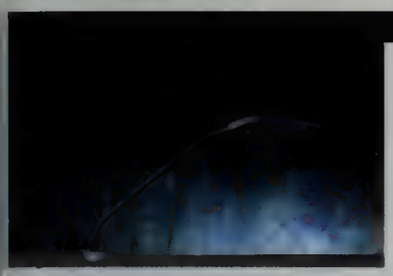


575. Adjustable ballast
The Ultra 3000 electronic ballast can be preset by the user to any of four settings to optimize task-light level and energy savings. The ballast is designed for use with 1-, 2-, and 3-lamp fixtures. The electronic units produce silent, flicker-free light, with +-5 percent total harmonic distortion. Canterra International, Engelwood, Colo.



576. Table lamp
The sleek Onidia lamp designed by Santiago Calatrava has a 17-in.-high base of molded glass-fiber reinforced nylon. The rotating cast aluminum diffusing head incorporates a high-efficiency reflector for a 20W, 12V halogen lamp. A two-level switch controls the lamp's intensity. Artemide, Inc., Farmingdale, N. Y.

For more information, write item numbers on Reader Service Cards.



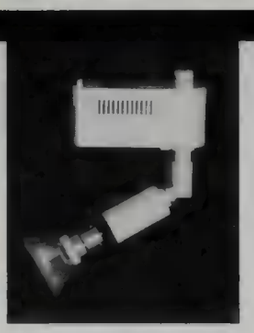
577. Computer task lamp
The 13W compact fluorescent Birdy task light was designed by the Elixer Design Group of France. Translucent or solid shades are available in five colors. A louver on the underside of the fixture head directs light onto the work surface, while preventing glare on computer screens. J. O. L. T. Lighting, Ltd., Capron, Ill.



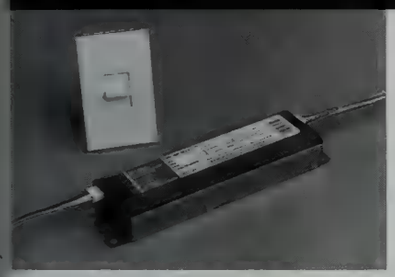
578. In-wall loudspeakers
The AuraStyle in-wall loudspeaker assemblies mount in side walls or ceilings, and may be easily installed in new or retrofit construction. The two- or three-way versions offer excellent bass response and high-power handling, according to the manufacturer. Installation aids and wiring accessories are available. Atlas/Soundolier, Fenton, Mo.



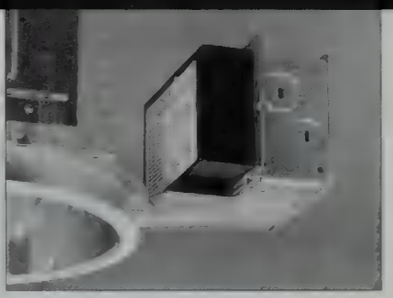
579. Asymmetric HID fixture
The Compact Surface-Mounted HID Series luminaires extend only 4 3/4-in. from the surface they mount to. They combine rigid, extruded asymmetric reflectors with high-output, metal-halide lamps. The fixture produces even light output, and wide lateral distribution. Elliptipar, Inc., West Haven, Conn.



580. Retro-track heads
The MR-Snap-16 is a low-voltage fixture that snaps onto existing 120V track. It has an integral transformer that uses small MR16 lamps available in a variety of beamspreads. The fixture replaces bulkier, less efficient full-voltage track heads and is available in black or white. Spartan Lighting Equipment Co., Div. C. E. W. Lighting, Inc. Dallas.



581. Dimming ballast
A new addition to the Hi-lume line of electronic-fluorescent ballasts has been introduced. The ballast operates 3-lamp, T8 fixtures at 277V, and is capable of dimming them as low as 1 percent of full output. The flicker-free, solid-state unit yields 95-percent power factor, and less than 10 percent total harmonic distortion. Lutron Electronics, Coopersburg, Pa.



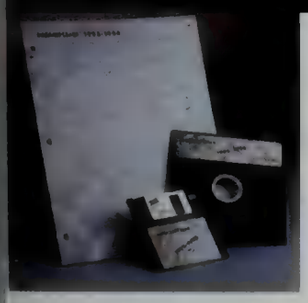
582. Efficient downlights
Calculite downlights maximize the output of compact-fluorescent lamps by using electronic ballasts, precision reflector optics, and reducing lumen depreciation due to heat build-up. A wide variety of luminaire types is available with many iridescence-free reflector types. Lightolier Division of Genlyte, Secaucus, N. J.*



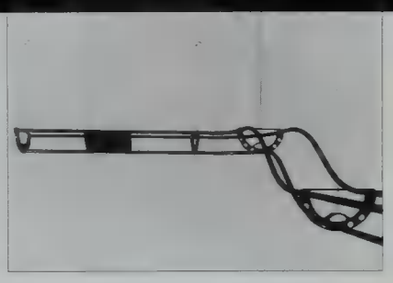
583. Wet-location luminaires
A family of extremely durable recessed ceiling luminaires are UL-listed for wet locations. Finished in brushed stainless steel, the luminaires use 20W or 50W low-voltage halogen lamps, and are available with symmetrical, elliptical, or asymmetrical distributions. Many custom-applied colors are available. BEGA/US, Carpinteria, CA.



584. Touch controls
Multi-button touch controls can eliminate wallbox dimmers, toggle switches, and other controls. Using a central-control unit, several control boxes can operate one load, or one control can operate several loads. Wiring is simple and flexible. Several different styles of touch controls are available. Light Touch, Salt Lake City.



585. Photometric database
DataMetrics is a database that supplies qualified lighting professionals with photometric data for the manufacturer's lighting fixtures. The annually updated disks come in 5.25-in. or 3.5-in. formats, and the photometric data is written in the IESNA91 format supported by most lighting-calculation software. Edison Price Lighting, New York City.*



586. Truss-mount indirects
The Lightruss System is a series of indirect lighting modules that are supported by a continuous truss system. The trusses are formed of three extruded aluminum tubes, separated by aluminum bulkheads. These can be configured many different ways, and a wide variety of optical systems and light sources is available. SPI Lighting, Mequon, Wis.



587. Adaptable floor lamp
The Aladino, a floor lamp conceived by Matthias Dietz, uses either incandescent or halogen lamps. The lamp's shade designs are based on a cultural theme, such as the first, "Far East Impressions," which was designed by a group of leading Japanese designers. Future editions will be feature other cultural themes. Belux AG, Switzerland.



588. Illuminance meter
The TL-1 is an inexpensive, easy-to-carry illuminance meter. Models of the meter are available to take measurements either in footcandles or lux ranging from 0.01 to 1,999 in footcandles, or 0.1 to 19,990 in lux, expandable with an optional neutral-density filter. Flickering light and deviation between sources can be measured. Minolta, Ramsey, N. J.

* *Product Data on CAD disk*



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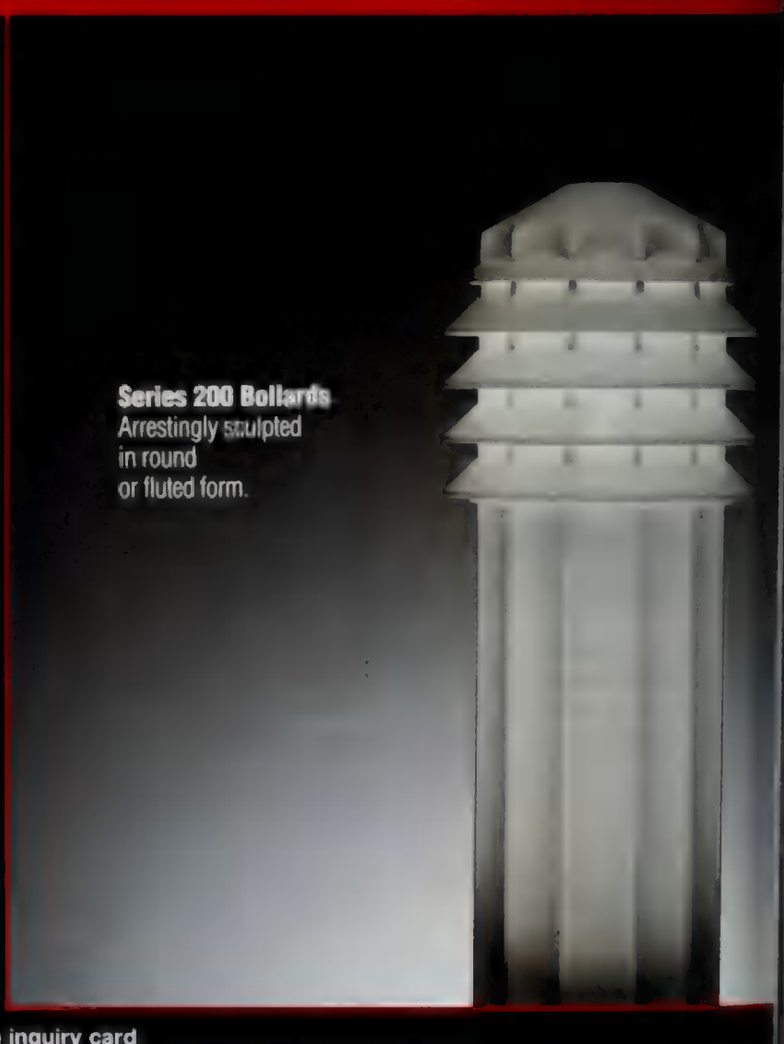
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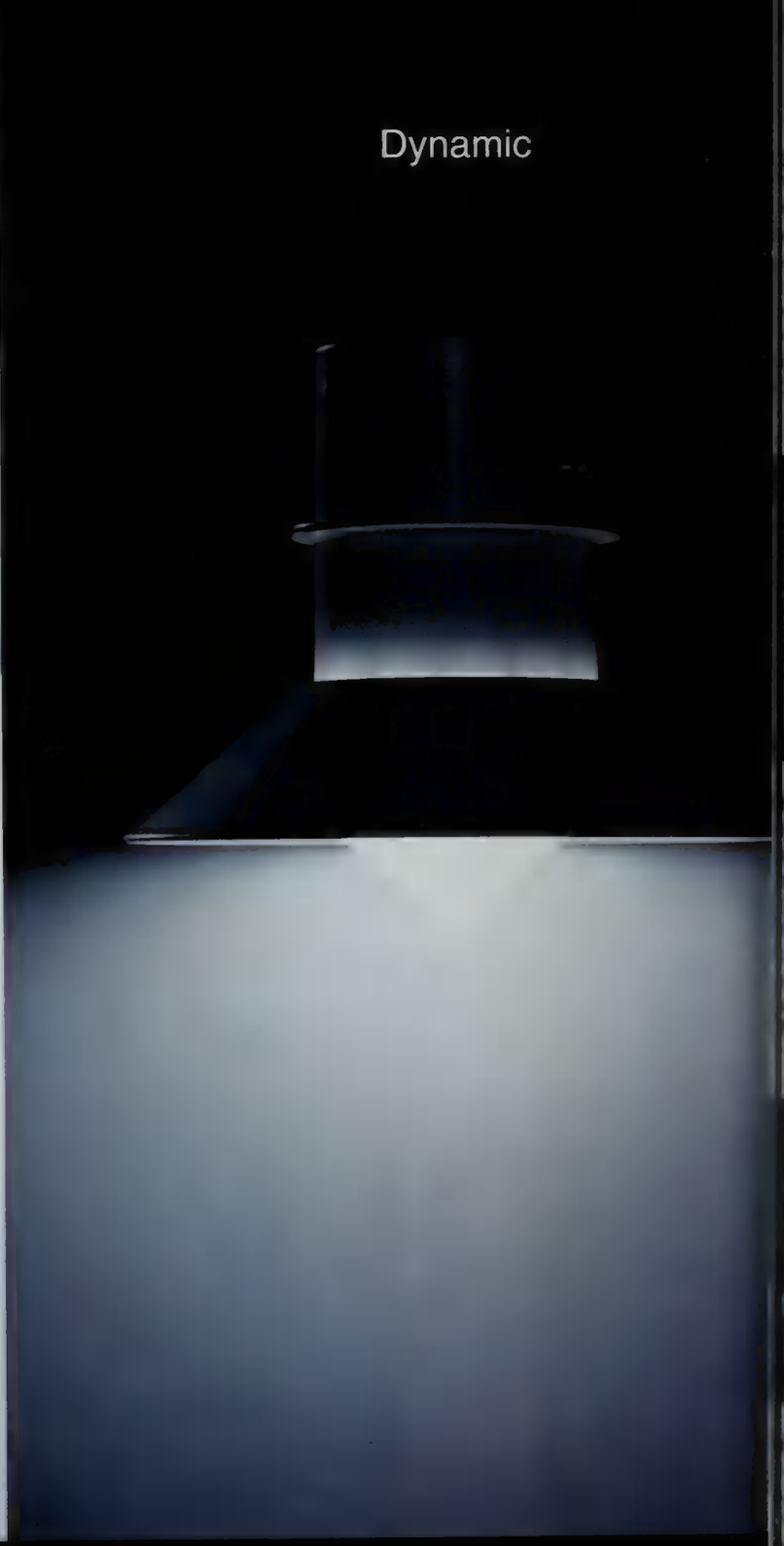
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589. Task-lighting system
The Hangtight system allows task lighting to be mounted directly to office partitions, freeing up desk space while allowing the luminaires to be easily adjusted. Several different styles of louver-shielded halogen and compact-fluorescent luminaires are illustrated. Dazor Manufacturing Corp., St. Louis.



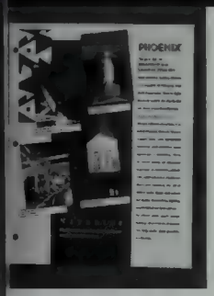
590. Complete track line
A 68-page track catalog includes product-system specifications, information on lighting techniques, and lamp-selection criteria and data. The "Creating with Light" section of the catalog explains photometric charts and wallwashing, and shows how to illuminate objects like sculpture and tabletops. Capri Lighting, Los Angeles.



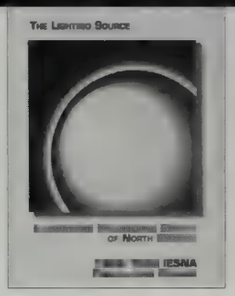
591. Control devices
Lighting-control devices are featured in a 60-page catalog. Specification information on incandescent and fluorescent dimmers in many styles is included, such as sliding, rocker, rotary, and preset types, as well as occupancy sensors and motor-speed controls. Leviton Manufacturing Co., Little Neck, N. Y.



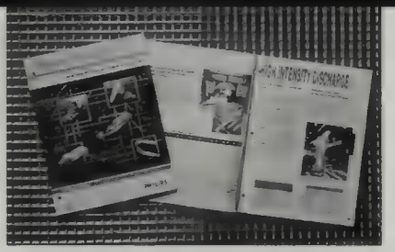
592. Decorative catalog
An extensive four-color catalog illustrates an array of highly sculptural halogen and incandescent lighting devices, including pendants, floor lamps, sconces, and desk lamps. Dimensioned line-drawings and fixture specifications are given. Artup Corp., Santa Ana, Calif.



593. Projection Luminaires
fact sheet lists and explains practical solutions for exotic lighting challenges. The sheet details the manufacturer's line of heavy-duty, UL-listed products, which are designed to resist exposure to moisture, chemicals, saltwater, shock, and vibration. Phoenix Products Co., Milwaukee.



594. Publications guide
Lighting Sources brochure describes the publications of the Illuminating Engineering Society of North America. Included are standard references such as the IESNA Lighting Handbook, the Recommended Practices book, lighting design guides, energy-management guides, and calculation guides. IESNA, New York City.



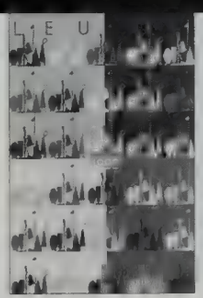
595. Specification guide
The 128-page Specification and Application Guide for lighting professionals, distributors, and end-users has been updated and improved. New information on the National Energy Policy Act of 1992 and the Green Lights Program is included, as is a 24-page application guide. Philips Lighting, Somerset, N. J.



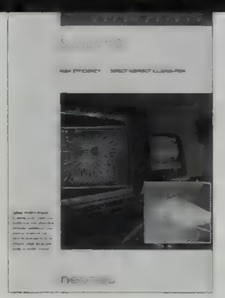
596. Recessed-lighting guide
A 20-page recessed-lighting catalog features 140 products, including low-voltage and energy-efficient compact-fluorescent downlights. IC and non-IC incandescent housings for specific uses like sloped ceilings and remodeling are shown. Eighteen 4-and 6-in. universal trims are offered. Residential Lighting Div., Thomas Industries, Louisville, Ky.



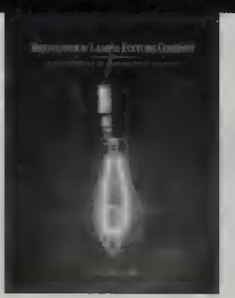
597. Vintage exterior lighting
64-page color catalog presents comprehensive array of vintage exterior-lighting products, including posts, luminaires, and bollards. Acorn- and globe-type luminaires can be matched with an extensive assortment of poles. Four-color application photographs and photometrics are included. Sternberg Vintage Lighting, Chicago.



598. Designer luminaires
A lavishly illustrated four-color catalog features Leucos U. S. A.'s extensive line of pendants, wall sconces, and table and floor lamps. The fixtures are said to be suitable for projects as diverse as corporate headquarters, shops, hotels, nightclubs, residences, and cruise liners. Leucos U. S. A., Edison, N. J.



599. Efficient direct/indirect
The Series 90 is a pendant-mount, direct/indirect fluorescent luminaire whose light distribution is nominally 60 percent indirect and 40 percent direct. Its use creates a visually comfortable environment with fewer luminaires, says the manufacturer. A four-page folder listing product features; photometrics are available. NeoRay Lighting, Brooklyn, N. Y.



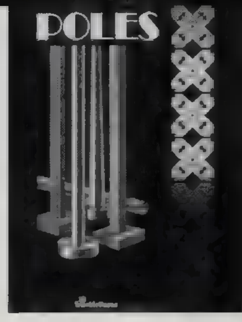
600. 20th-Century replicas
A 40-page color catalog illustrates a full line of UL-listed Victorian, Arts and Crafts, Art Deco, and other 20th-century light-fixture reproductions, available in pendant, wall, table- and floor-lamp styles. Art glass and globe options and a complete ordering guide are included. Rejuvenation Lamp and Fixture Co., Portland, Ore.

Product Data on CAD disk

For more information, write item numbers on Reader Service Cards.



601. Lamp catalog
The Spectrum 9200 Lamp Catalog lists lamps for a wide range of applications. Lamp types include incandescent, halogen, fluorescent, stage, and studio lamps. Bulb shape, wattage, voltage, lumens, rated life hours, CRI and color temperature, dimensions, and other information are listed. General Electric Co., Nela Park, Ohio.



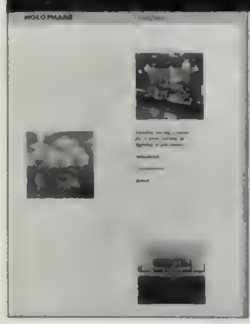
602. Pole catalog
A comprehensive lighting-pole catalog is available. The catalog features embedded and anchor-bolted fiberglass, concrete, wood, steel, and aluminum poles. Metal poles are available in square, round, straight, and tapered shapes up to 40 ft tall. Aluminum poles also come in a cruciform shape. Many finishes are available. TrimbleHouse, Norcross, Ga.



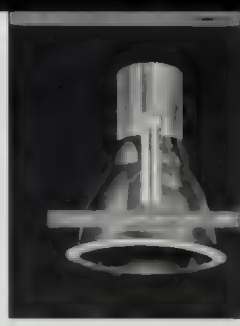
603. Sunlight collector
The Himawari is a sunlight-collection device which uses Fresnel lenses mounted in a sun-tracking unit to focus light on the ends of fiber-optic cables. The light—almost identical in spectrum to sunlight—is transmitted via the cables to any location where needed. Most ultraviolet and infrared light is eliminated in the process. Mitsubishi Intl. Corp., New York City.



604. Full-line catalog
A full-line color lighting catalog presents over 1,100 traditional and contemporary lighting products, including chandeliers, pendants, wall sconces, ceiling units, and bath and vanity products. Exterior post- and wall-mounted fixtures and a full line of landscape-lighting products are also included. Kichler Lighting, Cleveland.



605. Flexible wiring system
The Holoflex flexible wiring system is described in a 12-page brochure. The system is complete from panel or junction box throughout the lighting installation, and allows fixtures in commercial, industrial, and institutional settings to be disconnected and rearranged without interrupting power to other fixtures. Holophane, Newark, Ohio.



606. Compact-fluorescent line
A 12-page color brochure illustrates a complete line of compact-fluorescent fixtures. Included are 6- and 8-in. recessed models, recessed spread lens fixtures, recessed squares and ovals, and step lights. Insulated ceiling (I.C.) recessed fixtures, emergency-light battery backups, and incandescent fixture conversion kits are illustrated. Juno Lighting, Des Plaines, Ill.



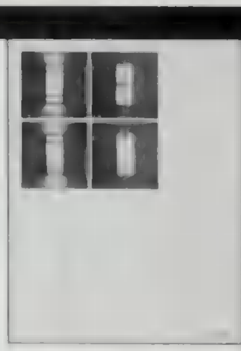
607. Track-lighting catalog
A 16-page catalog presents track, accent, and display-lighting equipment. Featured are track systems, various track-mounting devices, long-throw spotlighting fixtures, low-voltage spotlighting, line-voltage, tungsten-halogen and compact-fluorescent fixtures, and filters and accessories. Lighting Services, Inc., Stony Point, N. Y.



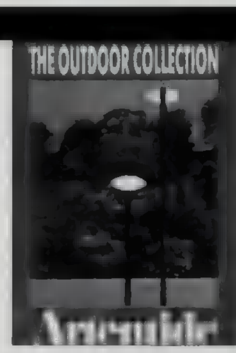
608. Parabolic panels
An engineering data and specifications guide to a wide range of specular-finished plastic and aluminum parabolic panels and baffles is available. The guide gives relevant dimensions, cutoff angles, and finish options. Photometric data include candela charts, lumen summaries, and more. A.L.P. Lighting and Ceiling Products, Niles, Ill.



[illegible] luminaires
[illegible] family [illegible]



610. Sconces and pendants
A series of catalog inserts details a number of contemporary sconces and pendants. The inserts give complete information on the fixtures, including color application photographs, pertinent dimensions, photometrics, finish, mounting, lamping and ballast information, and wiring requirements. [illegible] Lighting, Milwaukee.

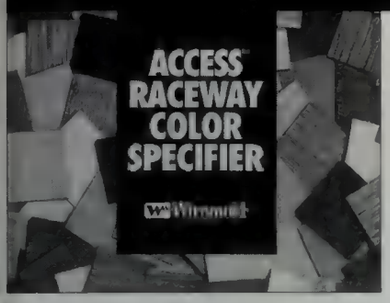


611. Exterior catalog
A 44-page catalog illustrates a full line of contemporary exterior luminaires, including wall- and ceiling-mounted fixtures, pole-mounted fixtures, and bollards. Most are available in incandescent and fluorescent. The catalog includes photographs, lamping information, drawings, and photometric data. Artemide, Inc., Farmingdale, N. Y.

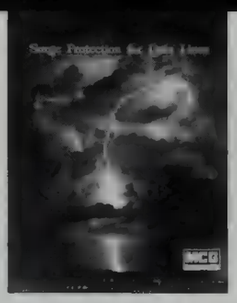


612. In-ground lights
A family of burial landscape-lighting fixtures features composite housings, sealed optics, versatile optics, encapsulated ballasts where required, and a full range of accessories. A 20-page specification guide illustrates these features as well as giving installation instructions and more. Bronzelite, a division of Genlyte, San Marcos, Texas.

For more information, write item numbers on Reader Service Cards.



613. Raceway options
The Access raceway is used as a baseboard, and its two-channel design can accommodate video, data, coaxial, or phone cables. It is UL listed for up to 300VAC. Snap-on covers come in white, gray, black, cherry, maple, mahogany, white oak, and custom colors or veneers. Corner pieces eliminate miter joints. Wiremold Co., West Hartford, Conn.



614. Surge protection
A 16-page catalog and application guide offers surge protection for virtually every data, signal, or telephone-line application. The guide shows how RS232, 485, 4-20, MA loops, modems, FAX and PBX, and LANs can all be protected from damage by transient overvoltage. MCG Electronics, Deer Park, N. Y.



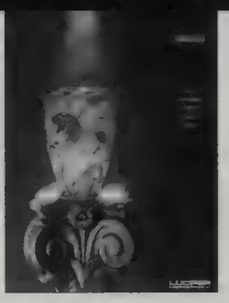
615. Downlight family
The Lite Box series of architectural downlights features precision-made Alzak reflectors, preadjusted sockets, and die-cast trim rings. All of the trims have the same dimensions, ensuring a consistent appearance in the ceiling, whether an incandescent, low-voltage, compact-fluorescent or HID model is selected. Prescolite, San Leandro, Calif.



616. Low-voltage landscape
A 12-page catalog illustrates safe, compact low-voltage garden lighting fixtures. Architectural-grade products featured include path lights, flood lights, well, tier, and step lights, and numerous accessories. Various garden lighting effects are illustrated. Intermatic Inc., Spring Grove, Ill.



617. Mini bollard
The Compact Bollard Series of 24- to 32-in.-high garden lights provides soft pools of light for orientation and safety. Constructed of extruded and die-cast aluminum, the units use louvers and a prismatic-glass optical system. Incandescent, compact-fluorescent, or HID lamps are available. Kim Lighting, Inc., City of Industry, Calif.



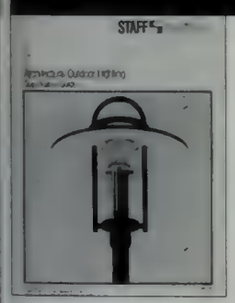
618. Low-voltage downlight line
A 16-page brochure illustrates a full line of low-voltage downlights. A complete explanation of the fixtures' housing construction, transformer types, lamp, fuse, trim, and accessory options is given, along with extensive photometric data and color photographs of applications. Lucifer Lighting Co., San Antonio.



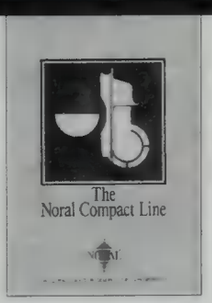
619. Lighting-product poster
A four-page gatefold poster uses color photographs taken at notable installations to illustrate BEGA's full product line. Spheres, pendants, bollards, flood- and buried-uplights, garden luminaires, and pole-mounted lights are shown. Phone numbers of product representatives are given. BEGA, Carpinteria, Calif.



620. 2-D fixture brochure
An entertaining and informative eight-page catalog insert traces the history of the search for the perfect light source, culminating in the introduction of the 2-D fluorescent lamp. The insert discusses lamp efficacy, fixture types available, payback, and annual energy savings. Alta Illumination Co., Division of CSL Lighting Mfg., Valencia, Calif.



621. Exterior catalog
A 68-page catalog gives comprehensive details on a complete line of exterior lighting fixtures including dimensions, lamping options, fixture specifications, photometrics, finishing, and ordering information. Bollards, wall- and pole-mounts, and illuminated handrails are illustrated. Staff Sales, Inc. Highland, N. Y.



622. Outdoor fixtures
A 20-page, four-color catalog presents photographs of an array of exterior lighting fixtures. Cast-aluminum sconces, pole-mounted luminaires, and bollards are pictured, along with drawings and overall dimensions. The fixtures are guaranteed against corrosion for 20 years. Noral Lighting Inc., Cleveland.



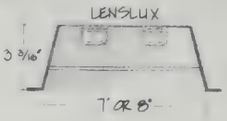
623. Floor boxes
The Walkerbox RFB is a cast-iron multi-service recessed floor box that can accommodate single or duplex power, GFI and surge-protection devices, modular jacks, or LANs. The brochure gives installation details, and lists features of various models and accessories available. Walker Division of Butler Manufacturing, Parkersburg, W. Va.

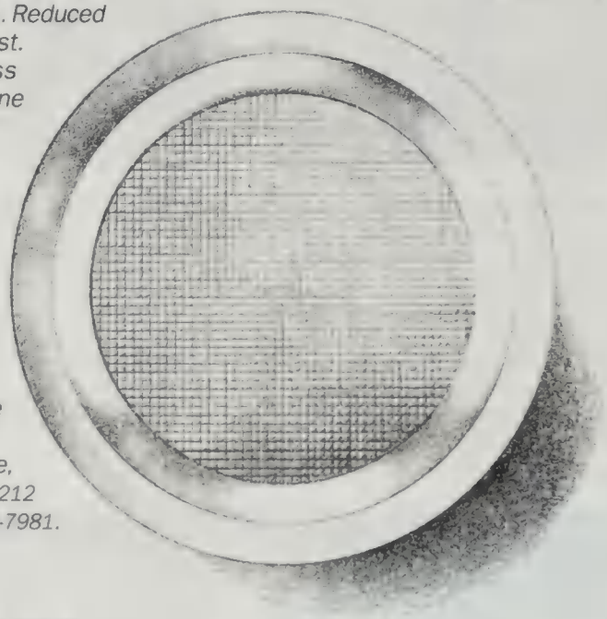


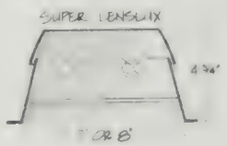
624. Compact cantilevers
A clamp-on portable luminaire uses up to a 50W MR16 lamp, which is cantilevered from an adjustable, telescoping arm. The unit is intended for display purposes, and comes with a 50W plug-in transformer. A kit with five luminaires, carrying case, and a 250W transformer is available, as is a ceiling-canopy-mounted model. Tech Lighting, Chicago.

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Announcing Lenslux: our first lensed downlight for compact fluorescent. Energy efficiency without exposed lamps. Low brightness prismatic lens. Elegant regressed trim in six finishes. Increased spacing ratios. Reduced ceiling contrast. Shallow recess depth. All in one well-groomed package. 7" and 8" sizes for 18 to 52 watts, with options for dimming and emergency lighting. For information and the name of your local representative, call 212-838-5212 or fax 212-888-7981.







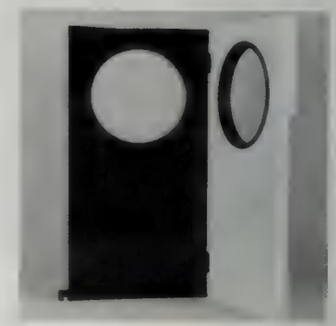
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WITH UNIQUE ATTRACTIVE DESIGN & QUALITY

ALUMINUM ROUND REGISTER

NEW PRODUCT

Model RHV **DOUBLE DEFLECTION**

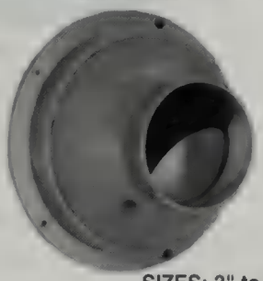


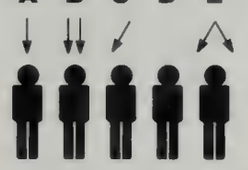
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Which translucent daylighting system is the only one with a cutting-edge technology, is leak proof by design, and is revolutionizing the industry?

That's a question you need to ask before you specify any skylighting/ daylighting project.

There's only one right answer–Danpalon from CPI International.

There are many good reasons why Danpalon is the most versatile, most cost-effective high performing translucent insulating daylight system.

But if you don't ask the right people the right questions, you'll never get the right answers. You COULD be putting your project in JEOPARDY!

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Excellence in Translucent Daylighting

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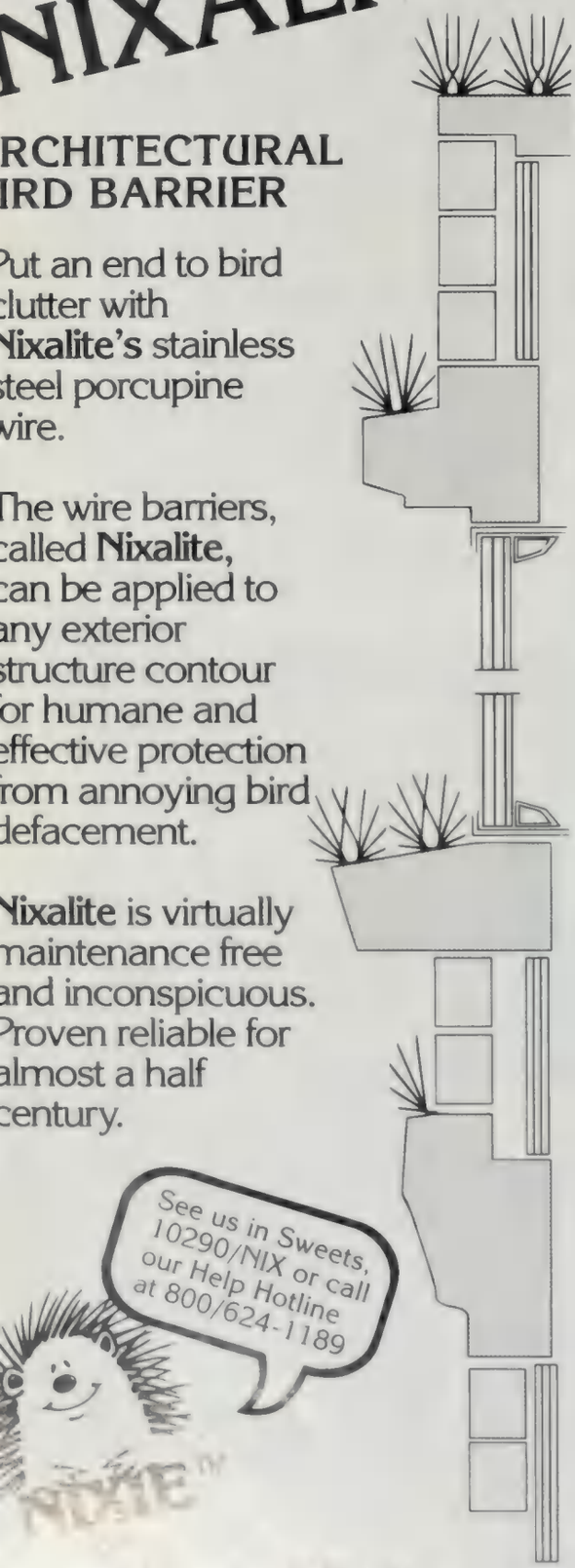
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IRD BARRIER

Put an end to bird clutter with Nixalite's stainless steel porcupine wire.

The wire barriers, called **Nixalite,** can be applied to any exterior structure contour for humane and effective protection from annoying bird defacement.

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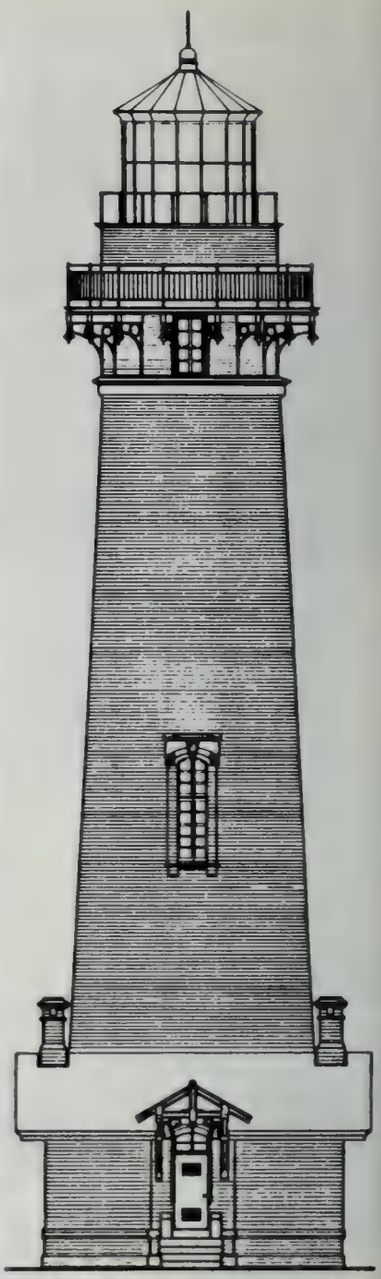
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Gain a wealth of experience and help preserve our historic and architectural heritage. Join the National Trust for Historic Preservation.

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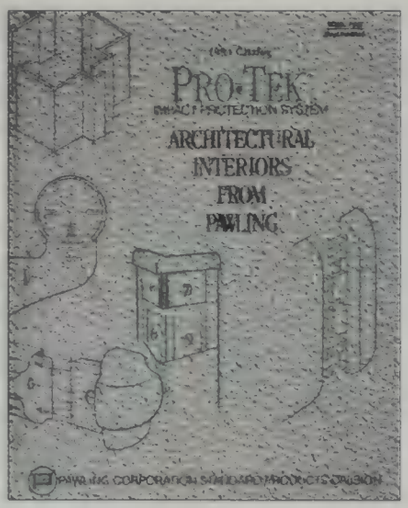
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Architectural Interiors
Wall & Corner Guard Systems

New colorful 24-page catalog features full line of wall and corner guards, handrails, vinyls sheet wall covering, baseboard systems and door protection products to complement your most stringent design/color requirements AND functionally reduce impact damage anywhere in heavy traffic environments: government buildings, office complexes, shopping malls, schools/colleges and healthcare facilities. Select from many styles and colors for contemporary design-coordinated projects.

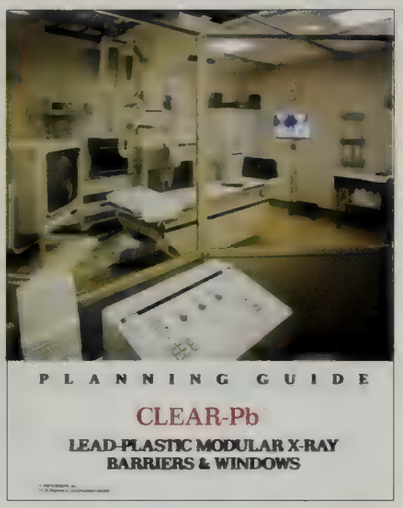


Pawling Corporation

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Free X-Ray Room Planning Guide

New guide illustrates user-designed installations of CLEAR-Pb Lead-Plastic Modular Barriers and Windows in hospitals, radiation therapy centers. CLEAR-Pb is a transparent, lead-impregnated plastic sheet in lead equivalencies from 0.3 to 2.0 mm; over 200 stock sizes up to 6 x 8 ft. (larger on special order).
Nuclear Associates.

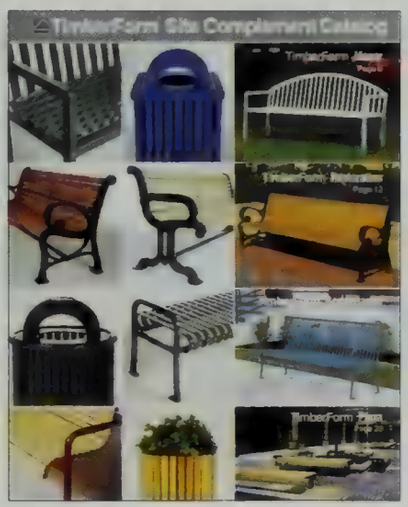


Nuclear Associates

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New 88-Page TimberForm Site Furnishings Catalog

More than 350 products made of cast iron, perforated metal, steel, welded wire & wood are offered in a dozen different design series in styles from traditional to contemporary. Ash receptacles, benches, bike racks, bollards, litter containers, picnic & game tables are presented in design coordinated families. Over 70 designer colors available. Photos, technical data & product dimensions are shown. Call 1-800-547-1940 (ext. 502).



Columbia Cascade Co.

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Chadsworth Columns™

Color brochures feature wood, fiberglass, polyester, E.P.S., stone and marble columns. Variety of sizes and styles. Round, square or octagonal with plain or fluted shafts. Job site delivery. Largest selection anywhere. CHADSWORTH...The Column Source for one-stop shopping. For catalog (800) 486-2118. Sales (404) 876-5410. Free brochures.

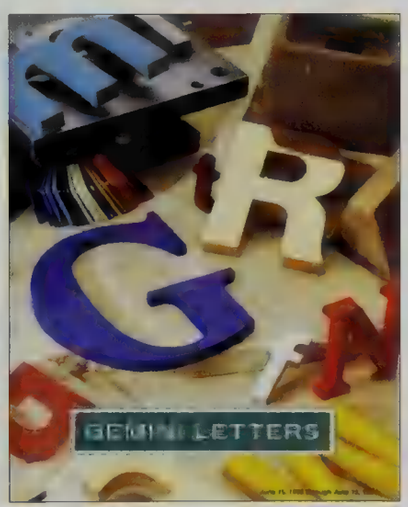


Chadsworth, Inc.

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Gemini Incorporated manufactures the best plastic and metal letters for Architects and Sign Professionals. All letters are GUARANTEED FOR THE LIFE OF THE BUSINESS NOT TO BREAK OR FADE. Gemini offers formed plastic letters, injection molded letters, cast and flat cut out metal letters, changeable copy letters, theater marquee and gas pricing numerals and custom letters and logos.

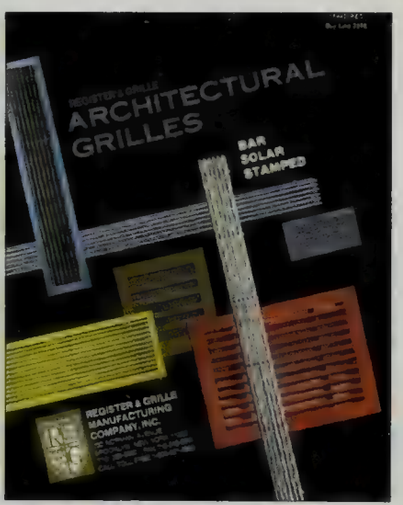


Gemini Incorporated

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Decorative Grilles

Unusual effects emerge when our grilles are designed for area effects. Versatility is the theme. R&G offers architects & interior designers many ways to express the changing forms of metal with the integrity of R&G's architectural grilles. Custom or standard finishes are available plus any grille can be made in matching color to blend with your decor. 202 Norman Avenue, Brooklyn, NY 11222.
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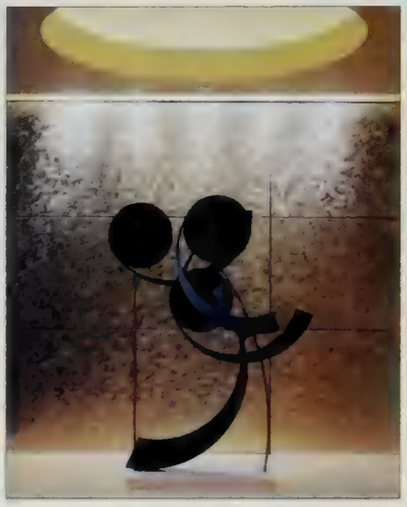
Register & Grille Mfg., Co.

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Custom Metal Graphics

Dramatic graffiti on Stainless Steel walls: beautiful, durable, vandal proof. Identical or similarly creative finishes can be applied by us on any surface like elevators, doors, columns, furniture, etc. in Stainless Steel, Brass, Copper or Aluminum. Like always: YOU DESIGN IT, WE PRODUCE IT FOR YOU! Call for information and samples: SURFACE DESIGN + TECH. 1-800-537-1127, Fax (305) 696-4064.



SURFACE DESIGN + Tech.

Circle 1059 on Inquiry card

Fire Retardants and Preservatives

Hoover Treated Wood Products' new 12-page Sweet's catalog features Pyro-Guard third generation interior fire retardant lumber and plywood for roof sheathing and other structural uses; Exterior Fire-X FRT lumber and plywood for decks, balconies, siding and other outside uses; and CCA preservative treated lumber and plywood that's kiln dried after treatment.



Hoover Treated Wood

Circle 1060 on Inquiry card

Stair and Floor Safety

Inquire about Fire Safety, Grit Strip, Visually Impaired and other rubber floor and stair tread systems featuring marbleized or plain, raised and surface designs in new popular colors. Also included is the latest entry flooring such as Disco, Low Disc, Square, Diamond, Fluff Cord and Traffic Tiles along with colorful illustrations and helpful specifications.

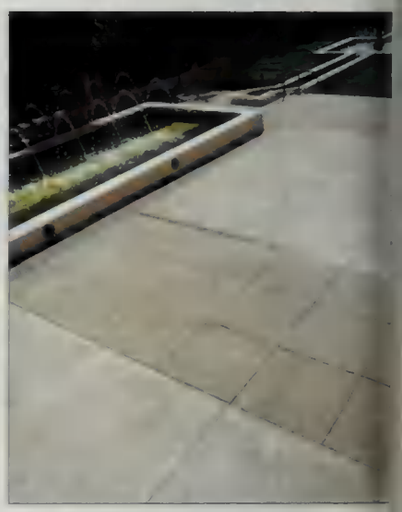


Musson Rubber Co.

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Bomanite Architectural Concrete Paving

Bomanite colored, imprinted and textured architectural concrete paving adds a distinctive touch to any municipal, commercial or residential project. Bomanite has the durability to stand up to the toughest traffic loads and environmental conditions. Available in more than 50 patterns in 25 standard colors. Custom colors also available. 209-673-2411



Bomanite Corporation

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VINYL & ALUMINUM

Easily installed, durable system is ideal for porch, deck, balcony & utility enclosures, building facades, fences, arbors, trellises & a variety of exterior & interior applications. Variety of sealants, patterns & finishes available. Installations are engineered in pre-assembly, thus reducing [illegible] Cross fabrication [illegible]



Cross Industries

Circle 1063 on Inquiry card

The Discrete Access & Egress Solution

Security requirements, space constraints, and aesthetic considerations are a few of the problem-solving applications for the JOMY Safety Ladder. The JOMY Safety Ladder looks like a drainpipe when closed, but opens to a heavy-duty ladder with slip-resistant rungs and a safety rail. The ladder's discrete appearance makes it an ideal solution for access and egress requirements.



JOMY Safety Ladder Co.

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Solutions

Egan Cleantack is a tackable product manufactured from integral skinned polyurethane. This injection molded product re-seals when pins are removed and can be cleaned and disinfected. These boards can be mounted independently or grouped together to form larger surfaces. **Egan's Custom Response Program** employs CAD/CAM methods to provide you with custom solutions to unique problems. Ongoing availability, fair pricing and a 5 year guarantee come with all Custom Response products. 800-263-2387.



Egan Visual

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Barrier-Free Entrances With Swing Door

Our *EasyAccess*™ swing door operator makes complying with the ADA 1990 mandate "readily achievable." ADA defines this as "easily accomplishable...without much difficulty or expense." The *EasyAccess* operator, installed without structural modifications, creates an affordably priced, barrier-free entrance for the physically disabled. Automatic operation with a push of a button.



Horton Automatics

Circle 1066 on Inquiry card

System 40/60

System 40/60 by Datel-Byrum of North America features Danish design and engineering in hundreds of storage and work station products for hospitals. labs, clinics and pharmacies. The line includes cabinets, carts, nursing stations, desks, pull-out cabinets and more. Modular storage components such as trays, baskets and shelves, provide organized storage, convenience, and versatility.



Datel-Byrum of North America

Circle 1067 on Inquiry card

B.I.G. Catalog of 294 Steel Booth Models

Pre-assembled & pre-wired, ready-to-install steel booths from B.I.G. Enterprises. We've been designing & manufacturing booths for over 20 years to blend pleasingly with any architectural style & ergonomic need. Easy to install, handi-cap approved, we deliver throughout the world. Call or write for your free catalog of 294 booth models. Call Dave King 800-669-1449 or write 9702 E. Rush St., S. El Monte, CA 91733-1730.

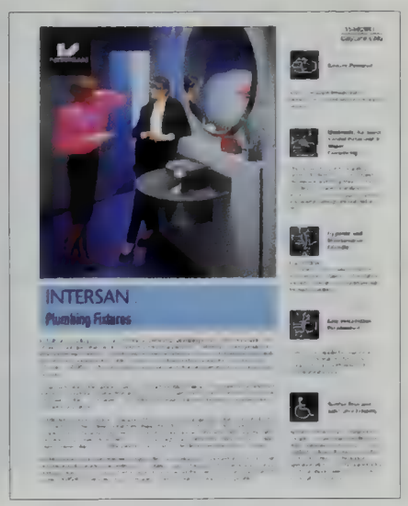


B.I.G. Enterprises

Circle 1068 on Inquiry card

1994 Plumbing Fixtures

Intersan's 1994 line of commercial plumbing fixtures are highlighted in this 4 page brochure. Intersan's battery operated sensor products are presented including Sanispray Washfountains, Sanifount wall hung three person lavatory system and the Istronic battery operated faucets. Intersan fixtures are designed for schools, medical facilities and office buildings.



Intersan

Circle 1069 on Inquiry card

Walkway Covers and Vestibules

Mapes Industries manufactures a complete line of pre-engineered walkways and vestibules to meet any budget or design consideration. Cost conscious roll formed, heavy duty extruded, or high tech acrylic styles are available in both standard and custom designs. A free Design Guide and budget information are available by calling 800-228-2391 or Fax 402-466-2790.



Mapes Industries, Inc.

Circle 1070 on Inquiry card

CATALOG PREVIEW '94

High-Wear Laminate Flooring System

This innovative laminate-clad flooring system mfg. by Panel Specialists, Inc. creates the traditional beauty of natural flooring by using 21st century material technology. FLOOR D'COR is a floating floor system, tongue & grooved on all four sides in standard plank sizes of 11 1/2" x 48" & available in over 250 laminate colors & patterns. Natures look of elegance & charm is preserved while durability is enhanced to provide a floor that will offer a lifetime of service in the most demanding traffic areas. FLOOR D'COR is "made in the USA" & readily available so no project need suffer from the delays caused by scarcity of raw materials or the lead time of imported products.

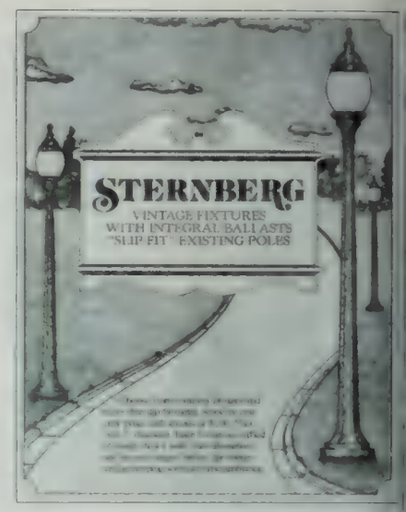


Panel Specialist, Inc.

Circle 1071 on Inquiry card

Sternberg Slip-Fit Lighting Fixtures

Sternberg Vintage Lighting has a new, expanded 8-page brochure describing commercial scale, cast-aluminum fixtures that will fit on existing concrete and metal poles. All have integral ballasts for a range of HID lamping. A variety of fitters for 3" through 7" tenons plus decorative arms are also described.



Sternberg

Circle 1072 on Inquiry card

DecoShield® & DecoSteel™

The UL Listed DecoShield® Modular Cover/Support System and the New Institutional DecoSteel™ System. An attractive and economical alternative for:

- *Fire Sprinkler Retrofits.
- *Plumbing,HVAC, Medical,Communictions, & Gas Piping.
- *CPVC, Steel or Copper.
- *Use below asbestos ceilings.

Call (800) 873-0894 for more information



Creative System Engineering, Inc.

Circle 1073 on Inquiry card

Concrete Waterproofing by Crystallization

Applied as a slurry coating, Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that 'plugs' the pores of the structure preventing water seepage. Xypex is ideal for use on the 'inside' of wet underground structures. For more information call 604-273-5265, or fax 604-270-0451.



Xypex Chemical Co.

Circle 1074 on Inquiry card

HANG-TIGHT PARTITION MOUNTING SYSTEM

Dazor Mfg. Corp. manufactures a full range of adjustable-arm lighting designed for a variety of applications. The most exciting solution for integrating task lighting with office workstations is the DAZOR PC-LITE plus the HANG-TIGHT wall partition mounting system. The PC-LITE is an energy efficient [illegible] solution to [illegible]

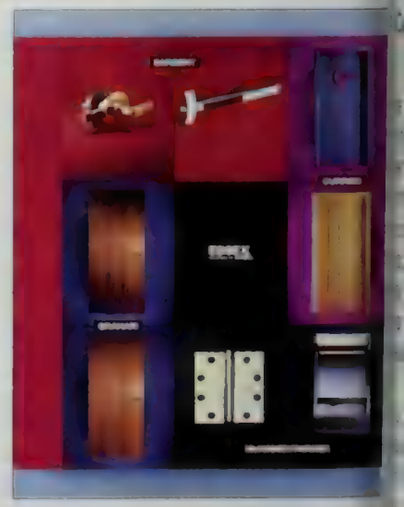


Dazor Manufacturing

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Total Opening Systems

Absolutely everything you need to finish an opening securely in the widest variety of materials is explained in detail in this comprehensive catalog from ESSEX Industries. SARGENT architectural hardware, CURRIES hollow metal doors & frames, GRAHAM wooden doors, MCKINNEY hinges and MCKINNEY Parker washroom accessories come together in this comprehensive reference work from the quality single source of total opening systems. Call; 1-800-945-0536.



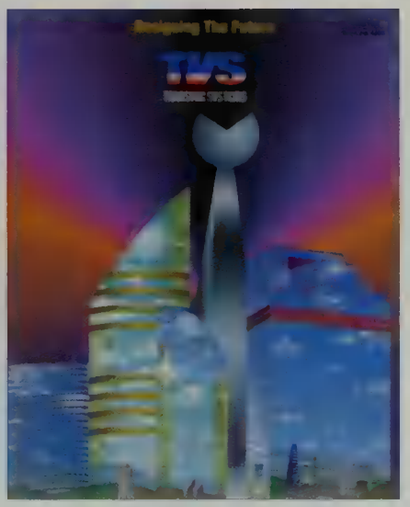
ESSEX Industries, Inc.

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AUTOMATED VACUUM TRANSPORT SYSTEMS

'aste and/or Soiled Linen

Perfect for large hospitals and similar buildings that erve thousands of people mprove the building environ- nent, management, and naintenance ull-vacuum and gravity/ acuum technology Custom design each system o building specifications



TRANSVAC SYSTEM INC.

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Doors of Distinction

Karona Inc. is located in Grand Rapids, Michigan, the fine furniture capital of the world, and is the leading custom door manufacturer in America. Our doors are structurally superior as well as traditionally beautiful and will enhance any entranceway. In Karona's new plant, we use state-of-the-art woodworking and computer controlled production equipment to transform the finest woods into doors that offer the look of tradition, with the performance of tomorrow.

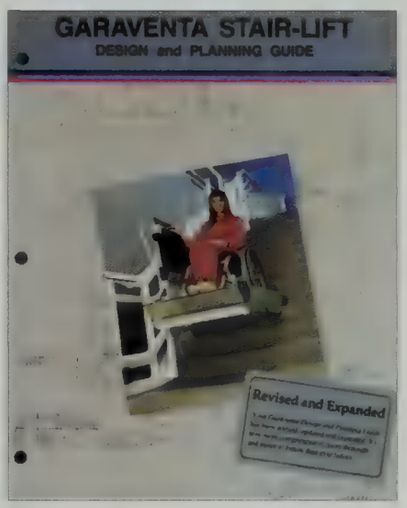


Karona, Inc.

Circle 1078 on Inquiry card

New Information on Garaventa Stair-Lifts

araventa, the leading anufacturer of wheel- air platform lifts, has just vised and updated your *air-Lift Design and anning Guide*. This 40- age booklet is now more mprehensive and easier read than ever before. l answer your concerns ADA compliance, lay- its, contract specifica- ns, and more. Call day for your free copy: 0-663-6556, 604-594-0422

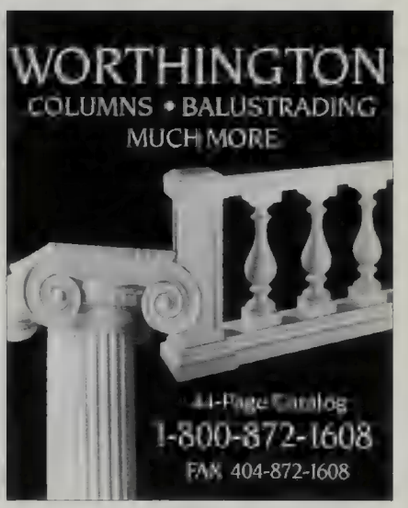


Garaventa

Circle 1079 on Inquiry card

Fiberworth Column & Balustrading

Introducing the Fiberworth Column and Balustrading. These Fiberglass composite products are the leaders in their industry. Fiberworth Columns are loadbearing and architecturally correct. The same premier precision as our other products; wood column, moulding, niches and much more. Shipped factory direct. 44-page color catalog available. 800-872-1608.



Worthington Group, Ltd.

Circle 1080 on Inquiry card

eramic Tile Catalog

e provide tile to hance any environ- ent - both commercial d residential. From ceptional floor tile and aceful mosaics to glis- ning marble and natural anite. Whatever your sign, Interceramic tile l add that distinctive uch of beauty. Call day for a free brochure: 00-496-**TILE**. The Best e World Has To Offer.



Interceramic USA

Circle 1081 on Inquiry card

Marvin's Commercial Catalog

Marvin Windows & Doors' new commercial catalog describes the extensive commercial capabilities of Marvin's entire line of wood and clad wood windows and doors. The catalog provides information on product styles, performance and design capabilities, as well as Marvin's Architectural Support Department and other non-residential services. Includes the Magnum Series, Marvin's premiere products for commercial applications.



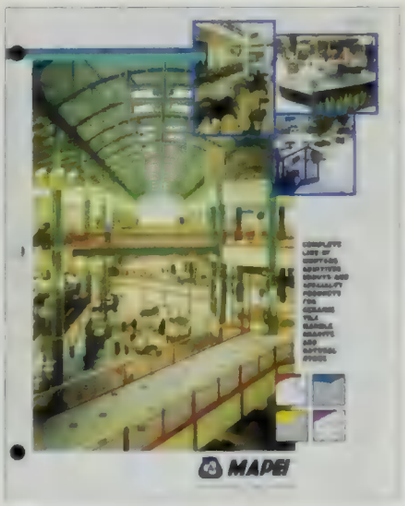
Marvin Windows

Circle 1082 on Inquiry card

CATALOG PREVIEW '94

Mapei's 1994 Catalog

MAPEI's 16-page 1994 product catalog introduces an expanded grout color offering and features pertinent product characteristics and specification compliances. The catalog contains detailed technical drawings of typical installations, plus reference charts containing physical properties, installation coverages, and packaging information. The catalog coordinates with MAPEI's product color-code and graphic theme currently carried throughout its packaging and technical literature.



Mapei Corporation

Circle 1083 on inquiry card

Intelligent ADA Signage Solutions

iSI introduces the most progressive signage solutions that comply with the stringent requirements dictated by the ADA. Unlike many sign manufacturers, our only business is ADA related. We know the needs of architects and designers and can assist you in performing site surveys and can offer guidance throughout the entire compliance process. No other company provides greater flexibility in product design. By utilizing multiple manufacturing processes, iSi is better equipped to meet your varying sign needs. Call iSi today...we'll help your customer become ADA compliant in no time, *Nationwide Network* 813-953-6001



Intelligent Signage, Inc

Circle 1084 on inquiry card

Ornamental Fiberglass Light Poles

Thomas & Betts announces the addition of a new series of decorative antique poles to it's American Electric Lighting product line. These three new poles: the Washington, the Kaiser, and the Tudor are available individually or as a package with the American Electric Lighting decorative fixtures: the Bainbridge and the Athens.



Thomas & Betts

Circle 1085 on inquiry card

Curtain Wall, Honeycomb Panels & Extrusions

Recent research and development by Cupples Products has added the following New features: 6 3/4" system depth, 1/4" glass pockets for 1/4" vision glass, 2 1/2" system width, stack rail design, thermally broken system (pour & debridge) and a thermally improved system (PVC isolators). Cupples provides in-house capabilities to design, engineer, extrude, fabricate, finish, install & glaze.



Cupples

Circle 1086 on inquiry card

ADA Signage

Let Kroy Sign Systems take care of ADA signage compliance for your next projects. Kroy's ADA Tactile Sign Series complies with ADA code for tactile letters Grade 2 Braille and pictograms. They can also retrofit cur- applying to the sur-



Kroy Sign Systems

Circle 1087 on inquiry card

Amico Security Mesh™

SECURITY MESH is designed to act as a penetration barrier behind plaster or drywall finishes in either walls or ceilings. It is made by simultaneously cutting and stretching a solid sheet of steel...making Security Mesh one continuous sheet that will not unravel at the strands. Wherever security is critical...SECURITY MESH is your answer. Contact AMICO at 1-800-366-2642.



Amico

Circle 1088 on inquiry card

Architectural Metals

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J.G. Braun Company

Circle 1089 on Inquiry card

Gyp-Crete®, The Floor Specialists

New 1994 brochure features complete line of quality underlayments for new construction, renovation and repair. Whatever the challenge - from self-leveling applications to advanced sound and fire control - Gyp-Crete has a product designed to accomplish the task. Technical data and specifications are included. For a free brochure, call 1-800-356-7887, or fax 612-478-2431.

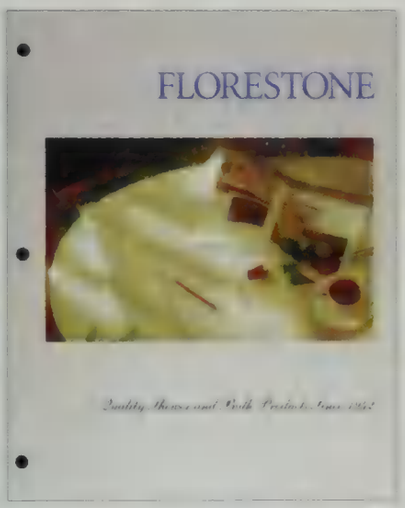


Gyp-Crete Corporation

Circle 1090 on Inquiry card

Barrier-Free Showers and Baths

ew color catalog fea- ures over 180 shower and ath products, including errazzo shower bases. lany barrier-free prod- cts are featured, includ- g two-piece and three- iece models for remod- ling projects. Specifiers nd architects receive full roduct specification inders. Call 1-800-446- 327 or fax 1-209-661-2070.



Florestone Products Co.

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Rinnai's Newest Thermostat Models

More than just a heater - an investment in comfort that pays dividends in $$$'s! Easy-to-use features, automatic pushbutton ignition, fully automatic thermostat, uses clean burning natural or LP gas, cost 3-4 times less than electricity, 1 1/2-2 times less than kerosene. AGA design certified, best warranties in the industry. Call 800-621-9419 or send for your free brochure today.



Rinnai

Circle 1092 on Inquiry card

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APCO

Circle 1093 on Inquiry card

Koala Bear Kare Brochure

The Bear Necessities For Happier Customers, the update Koala Bear Kare product brochure, is now available from JBJ Industries. The brochure provides full details on the Koala Bear Kare line of customer service child care products. Now, parents can keep a baby in a car seat safe and secure in the Infant Seat Kradle instead of on the table or on the floor. The brochure also describes the Child Protection Seat, which allows a parent to keep their baby safely in view while occupying a restroom stall, and the popular Baby Changing Station, which makes diaper changing in public places safe, sanitary and convenient. For a copy of the Koala Bear Kare brochure, call 1-800-666-0363.



Koala Corporation

Circle 1094 on Inquiry card

CATALOG PREVIEW '94

Ascend in Style

The standard "Princeton" double helix spiral stair (no center pole) rotates 180 degrees, however custom degrees of rotation can be manufactured. Shown is a 315 degree white oak stair. Wide selection of rail and baluster styles, as well as wood species. Family owned, quality is an A.J. Stairs commitment. Call for a free estimate and color brochure 800-STAIR-85 or in N.J. call (908) 477-8080, or fax (908) 477-8085.

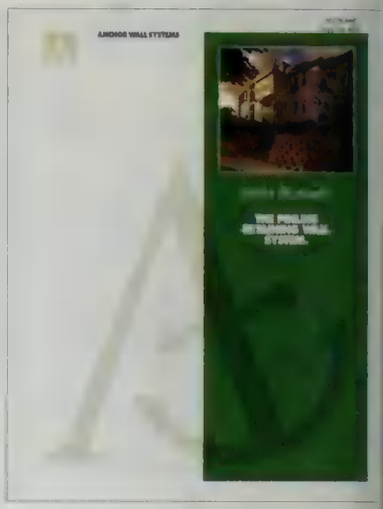


A.J. Stairs, Inc.

Circle 1095 on Inquiry card

Anchor Diamond® Pinless Retaining Wall System

Anchor Wall Systems new full-color catalogue offers complete product specification information, installation guidelines and reinforcement usage for its pinless and mortarless segmental retaining wall system that is flexible in design, easily installed, long lasting and a cost-effective choice for any commercial or residential retaining wall need. Call (800) 473-4452 for a free catalogue and manufacturer's name.

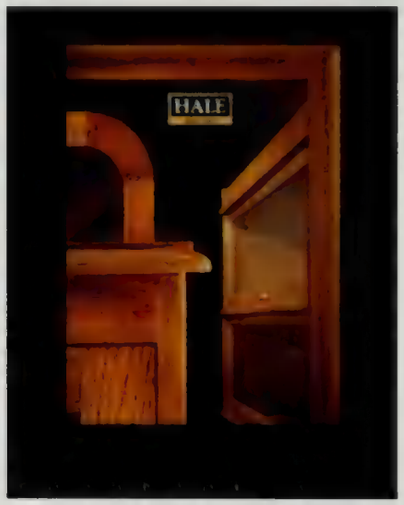


Anchor Wall Systems

Circle 1096 on Inquiry card

Hale Manufacturing For The Finest Bookcases

Hale's new catalog features their traditionally beautiful and functional bookcases, including the new 500 LTD Series. All distinctively handcrafted wood bookcases enhance their 86 year old reputation as "The Finest" bookcase builders. Bookcases are available in a variety of heights, woods and finishes. Call 1-800-USE-Hale for a free catalog.



HALE MFG.

Circle 1097 on Inquiry card

Real Tool, Inc. Snow Guards

Real-Tool Inc. produces one-piece, non-penetrating Snow Guards for standing seam metal roofs in bronze, lead-coated and cast aluminum alloy in mill finish, primed and custom colored. Range of sizes accommodate seam widths from 3/16" to 13/16", and seam configurations including double lock and mechanically seamed, and most capped, snap-lock, Z-clip and C-type prefinished architectural profiles.



Real-Tool Inc.

Circle 1098 on Inquiry card

HANDY-SHIELD™ BY PLUMBEREX PRODUCTS

HANDY-SHIELD safety covers conform to the Americans Disability Act(ADA) whenever insulation of drain & supply lines are required to protect individuals in wheelchairs from burns or injury. [illegible] basins features a [illegible] style [illegible]



Plumberex

[illegible] card

NEW VELCAD SOFTWARE

VELUX introduces the first design software created exclusively for roof windows & skylights. Designed in Microsoft Windows™ 3.0 & operable within or out of AutoCAD®, VELCAD accommodates two levels of user experience & can generate & receive .DXF files. VELCAD users can print detail drawings & specs & interfacing with AUTOCAD, can manipulate elevations, drawings and schedules. Contains a drawing viewer for printing & viewing head, jamb & still designs. Available free-of-charge to design professionals.

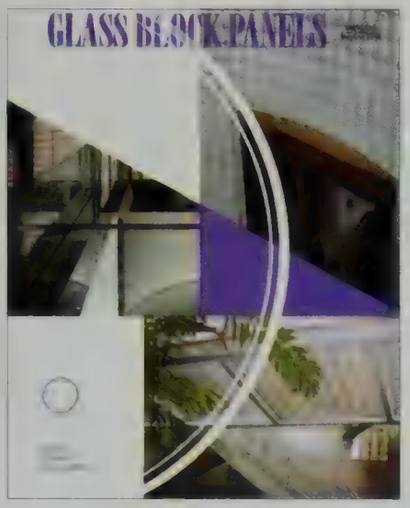


Velux-America, Inc.

Circle 1100 on Inquiry card

Prefabricated Glass Block Panels

Circle Redmont now offers standard size, prefabricated glass block panels for installation as skylights, barrel vaults, skybridges, floor and deck lights, stairtreads and landings, sidewalks, wall panels and complete structures. Structurally engineered, preglazed and fully waterproof, these panels are also available in custom sizes and a variety of glass block designs. Circle Redmont panels are constructed of reinforced monolithic grids in concrete or steel using solid glass block pavers or aluminum using hollow glass block. Call for copies of new brochures 1-800-358-3888.

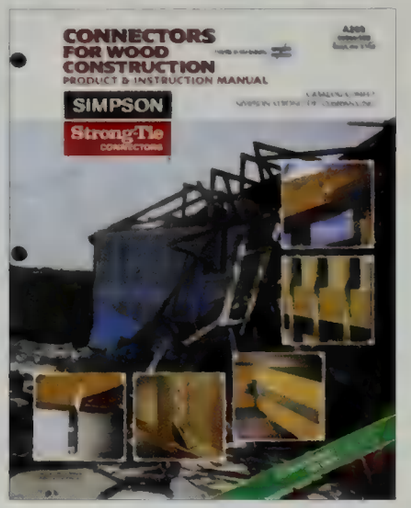


Circle Redmont

Circle 1101 on Inquiry card

Connectors for Wood Construction

The standard reference for specifiers of wood-to-wood and wood-to-concrete connectors, Simpson Strong-Tie®'s 80-page catalog includes dimensions, specs, load tables, installation drawings and building code acceptances (BOCA, ICBO, NER and SBCCI). All loads are now based on 1991 National Design Specifications. Essential for architects, structural engineers, contractors, and building inspectors. Electronic catalog and DFX library available.



Simpson Strong-Tie Connectors

Circle 1102 on Inquiry card

Fire Retardant Treated Wood

Dricon® FRTW has not experienced a single failure due to heat degradation since its introduction in 1981. It's patented, carries a 40-year builders' warranty, has been registered with EPA for termite resistance, is listed with AWPA, and complies with all three model codes. This brochure explains its use and specification.

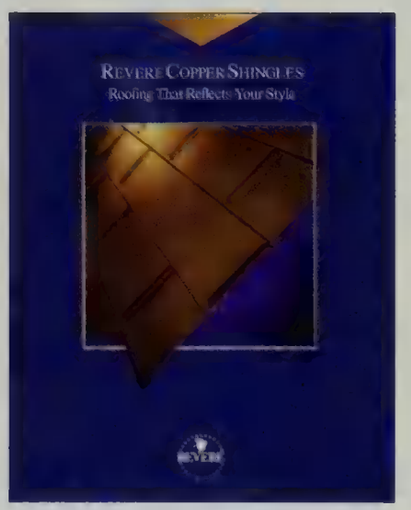


Hickson Corporation

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Revere Copper Shingles

Revere Copper Shingles are quicker and easier to install than ordinary asphalt shingles. There are no special skills required and no special tools. Because Revere shingles are manufactured from solid copper, not a foil laminate, they will likely last as long as the building they protect. To learn more about our copper shingles, or any of our other copper roofing products, call us toll-free at (800) 448-1776.



Revere Copper Products

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*Fin tube (baseboard) heating replacement covers.
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Arsco Mfg. Company

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New heavy-duty, tamper-resistant lamps for public areas, lounges, resident rooms & university apartments. Handsome Brass 'n Color table & floor lamps available in 7 designer colors or the Benjamin Moore color of you choice. Options include a night light, plug-in receptacle, theft-resistant Perma-Mount base & Safety Guard to prevent bulb removal. UL listed & CSA approved. Free 30 day trial offer. (800) 558-2628, or fax (414) 964-2944 for info. & samples



Adjustable Fixture Co.

Circle 1106 on Inquiry card

CATALOG PREVIEW '94

The Superior Architectural Glazing

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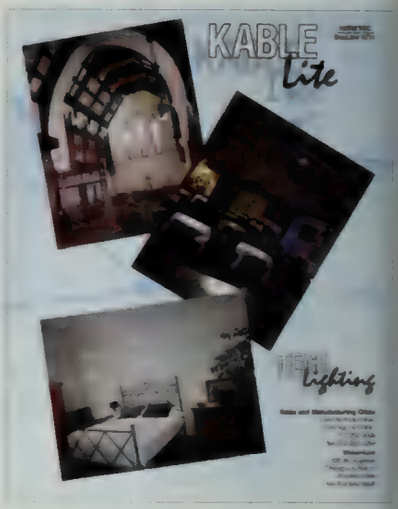


Sheffield Plastics

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Low Voltage Cable Lighting

Low voltage kable lighting is the track lighting of the 90's. It works on horizontal and vertical planes, and any plane in 3D space, offering pendants, sconces and heads. TECH Lighting's Kable Lite is the best selling UL, ETL and CSA listed low voltage cable system in the nation. Look for our new Kable Lite brochure in this year's edition of Sweet's or call us at 312-252-0008.

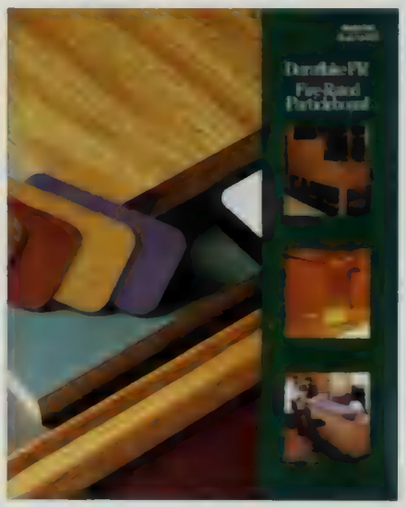


Tech Lighting

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DURAFLAKE FR is a smooth, grain-free, class I fire-rated particleboard panel designed to meet fire code regulations. It is an excellent substrate for fine wood veneers, high and low pressure laminates and vinyls in all wall systems, furniture and fixture applications where fire codes and public safety are critical. Contact Willamette Industries, Inc., P.O. Box 428, Albany, OR 907321 or call (503) 928-3341.

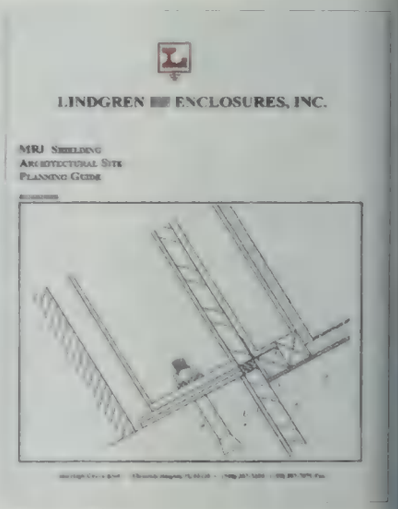


Duraflake

Circle 1109 on Inquiry card

Architectural Shielding Systems

A compilation of Radio Frequency and Magnetic Shielding details and specifications related to the design and construction of Magnetic Resonance Imaging suites. The architectural design package includes a Site Planning Guide, a full color brochure with many unique interior designs and configurations, product data sheets - including detailed information about the brand new Lindgren Clearshield Window Wall System - designed to provide maximum viewing and enhanced aesthetic appeal. For immediate response please fax request to 708-307-7571.



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Tuflex Rubber Products

Inquiry card

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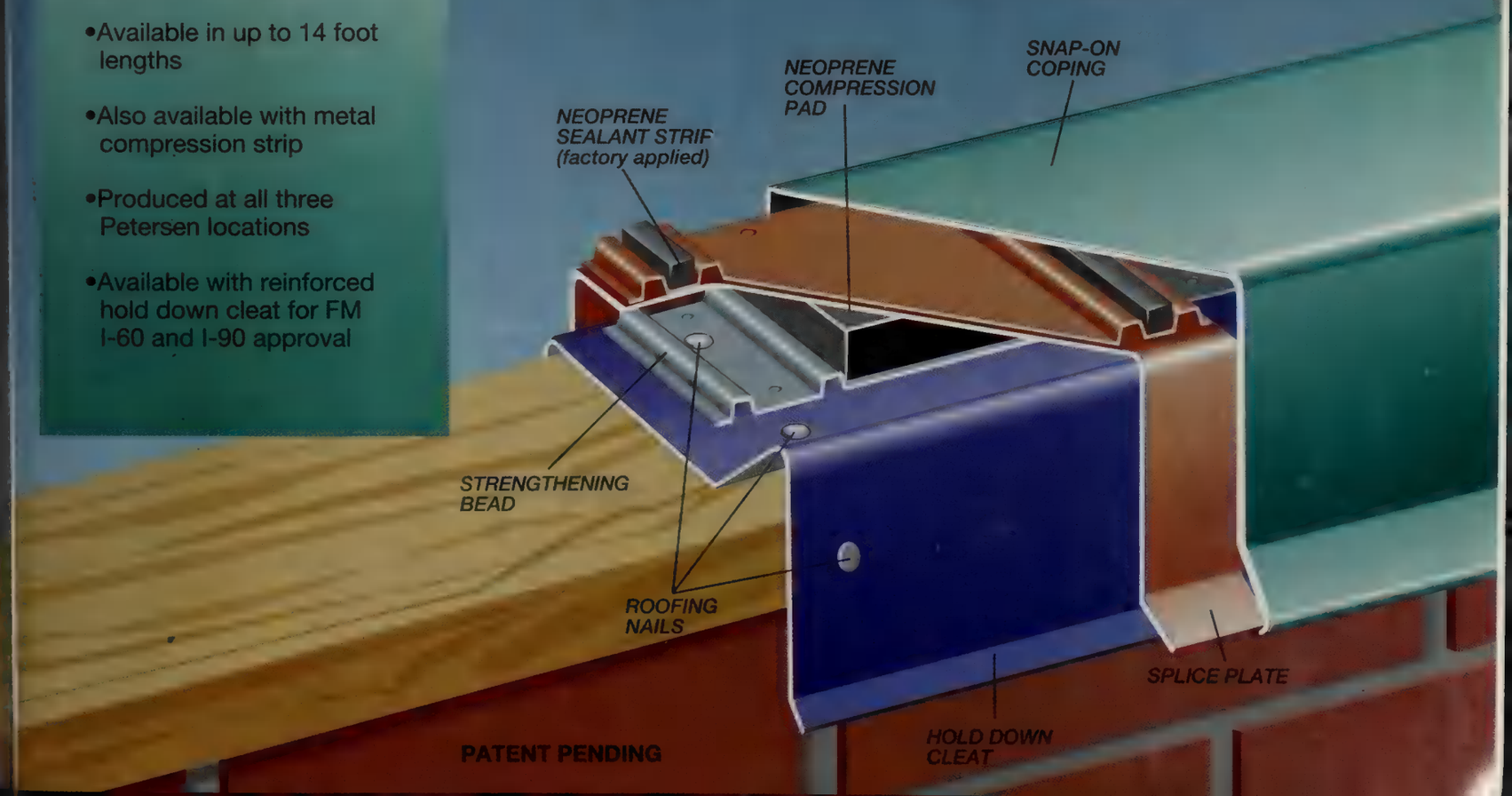
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Full-time. To offer graduate level studio instruction in urban design and lectures or advanced seminar courses on theoretical topics relevant to urban design. Applicants should have a professional accredited degree in Architecture, Landscape Architecture or Urban Design, and a strong record in research and/or practice of urban design, and experience in teaching.

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Applications are invited before 28 January 1994 on forms available from: **Harvard University Graduate School of Design, Office of Faculty Planning, 48 Quincy Street, S203, Cambridge, MA 02138, Attn: Urban Planning and Design Search Committee; FAX: (617) 496-5310.** Applicants should not send portfolios or dossiers with their applications. The Graduate School of Design is committed to seeking qualified minority and women candidates, and strongly encourages them to apply. Harvard University is an Equal Opportunity/Affirmative Action employer.

HARVARD UNIVERSITY
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Dean, University of Kansas School of Architecture and Urban Design. Nominations and applications are invited for the position of Dean for appointment effective July 1, 1994. The Dean is responsible for the administration of the School, with an enrollment of 790 and a full-time faculty of 35. A complete position description is available upon request. Screening of nominations will begin January 4, 1994, and should be sent to: Professor Kent Spreckelmeyer/Office of Academic Affairs/132 Strong Hall/University of Kansas/Lawrence, Kansas 66045. EO/AA Employer

Dean, School of Architecture, University of Virginia, beginning 1 July 1994. The School has four departments which offer undergraduate and graduate degrees in Architecture, Architectural History, and Urban & Environmental Planning, and graduate degrees in Landscape Architecture. Student can [illegible] certificate programs, in [illegible] and American Urbanism, that [illegible] field of study. [illegible] departments is approximately [illegible] consists of 50 [illegible] instructors. The [illegible] ship and administration within [illegible] relationships with [illegible] The University admin[illegible] and alumni. Nominees [illegible] participation in their [illegible] academic and administrative experience or professional equivalents. Nominations and/or applications with letter of interest, resume, and references should be received by January 15, 1994. Send to: Elizabeth K. Meyer, Chair, Search Committee for the Dean, School of Architecture, Campbell Hall, University of Virginia, Charlottesville, Virginia, 22903. (804) 924-3285. Minorities and women are encouraged to apply. The University of Virginia is an Equal Opportunity/Affirmative Action Employer.

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Corporate Architect. Gilbert/Robinson Restaurants has an immediate opening for an experienced Corporate Architect. Responsibilities include coordinating all activities relating to the design of new construction and remodeling jobs; establishing plans and specifications; coordinating all architectural and engineering services; and coordinating the zoning approvals, permitting and landlord requirements for new construction projects.The qualified candidate will coordinate and review kitchen design, custom fabrication details and project specifications with in-house kitchen designers, outside architects and engineers. Applicants must have a Bachelor's degree in Architecture or a related field, at least 5-10 years restaurant design/architecture experience, strong mechanical design background and excellent organizational skills. Located on Kansas City's Country Club Plaza, Gilbert/Robinson Restaurants offers an outstanding work environment, excellent benefits, and competitive salaries. Send resumes to: Catherine Conner, Manager/Professional Staffing, 47th & Main Street, Kansas City, MO 64112. Gilbert/Robinson EOE, M/F/D/V.

Product Managers and Documentation Writers. Graphisoft Software Development Ltd., developers of ArchiCAD, is inviting applications for full-time product managers and documentation writers to base in Budapest Hungary.
Graphisoft is one of the leading developers and publishers of architectural CAD software for Macintosh and PC. It employs 61 software developers, architects, engineers and support staff in its Budapest headquarters.
Graphisoft is seeking applicants with a strong architectural background, exceptional English writing and communication skills, and some knowledge of CAD software.
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State of Connecticut
Department of Transportation
Legal Notice

The Connecticut Department of Transportation is seeking to engage a consulting firm to develop a conservation and restoration plan for a group of approximately sixty-five rigid-frame concrete bridges on the Merritt Parkway with a wide variety of ornamental detail, built between 1937 and 1942.

The firm must have experience in dealing with aged and deteriorated concrete structures and should have specific experience with the conservation of historic concrete. This experience shall include rehabilitation intended to restore or maintain the structural integrity of such structures as well as that intended for historic preservation purposes. The firm must have the ability to sample and carry out scientific tests and analyses that will determine the nature of the specific materials used, the contaminants involved and processes of deterioration that are occurring. All tests must be carried out to the highest current national and international professional conversation practices. All tests must be performed in such a way as to avoid causing any structural distress to the bridges.

The scope of work is to include the inspection of all resources and the preparation of a report on materials, conditions, conservation priorities and recommended actions. Written specifications must also be provided for the conservation work recommended and the in situ rehabilitation of exposed concrete. The inspection shall include an in-depth structural inspection, and recommendations shall include those to address any structural deficiencies noted. Firms responding to this request should be of adequate size and sufficiently staffed to perform the assignment described above. The proposed staffing of the office providing the services must be identified. Also, successful applicants to this request shall provide plans, design, environmental data or other supporting data in an Intergraph Digital CADD compatible format. A letter of interest, together with general information on the firm and proposed subconsultants, the firm's brochure, current Federal GAS Forms 254 and 255, experience of the firm and a resume of key personnel should be addressed to Mr. Bradley J. Smith, Manager of State Design, Department of Transportation, P.O. Box 317546, Newington Connecticut 06131-7546. All interested firms must submit a detailed statement indicating the organizational structure under which the firm proposes to conduct business. Proposed subconsultants should be clearly identified. The relationship to an "parent" firm or subsidiary firm, with any of the parties concerned, must be clearly defined. Four copies of this submittal must be included.

The selected firm will be required to have a Department approved audit and affirmative action plan current corporate registration with the Secretary of State (partnership excluded). Proof of Professional Liability Insurance Coverage will be required prior to the start of the negotiation process.

The firm shall provide a statement of any and all contracts with either the Department of Transportation or the Department of Administrative Services which are currently being performed, and a statement as to whether the design professional consultant, or firm, performed services under any name other than the one appearing in the response. Personnel in responsible charge of the work will be required to possess and maintain a valid license for the practice of architecture and professional engineering in the State of Connecticut.

State of Connecticut,
Department of Transportation
Scenic By-Ways

The Connecticut Department of Transportation is seeking to engage a consulting team to develop corridor management plans for each of Connecticut's designated State scenic roads (not including the Merritt Parkway, for which a separate study is already underway). To date, 15 segments of state roads totaling 97 miles have been designated as state scenic roads. The corridor management plans will provide the Department with an agenda for maintaining, enhancing, and promoting the scenic, historic, cultural, natural and archaeological resources of the roadway and adjacent areas along Connecticut's designated scenic roads. The broad parameters of the plans may include the following: 1) a broad inventory of each corridor, identifying the elements of each designated scenic roadway segment that make it scenic, including documentation of important landscape, historic, and cultural resources (building upon scenic road designation application already made to the Department). 2) a survey of aesthetic highway design treatments currently in use or tested nationally (guiderail, lighting, signals, signs, vegetation, bridge parapets, design standards, etc.) and devising general guidelines and practices for ConnDOT's treatment of scenic roads, including maintenance activities, roadside landscaping, signing, guiderails, etc. 3) examining the Depart-ment's current process for reviewing proposed projects on designated scenic roads (including flow charting the process) and providing an assessment, including any suggestions for revision of state scenic roads regulations. 4) suggesting enhancements to projects planned for scenic roads that will maintain the character of road, suggesting aesthetic treatments to scenic road segments where there are no currently-programmed projects, and recommending treatments of and strategies for dealing with roadway segments where incompatible land use development has occurred. 5) creating a state-wide listing of projects to identify and promote cultural/historical resources on Connecticut's scenic roads (including, for example, roadway pull-out areas, historic markers, brochures, etc.), 6) developing roadway access management plans, after reviewing zoning and land use and identifying projects which might impact significantly the scenic character of the corridor, 7) surveying other scenic corridor management efforts nation-wide for measures which may be effective in maintaining the scenic character of the corridors and present findings. 8) developing a public involvement process to inform and gain input from citizens, town officials, and planning agencies. Given the broad interdisciplinary nature of corridor management plans, the consulting team may want to include expertise in land use and transportation planning, landscape architecture, engineering, historic research and preservation, and other relevant disciplines. Teams responding to this request should be of adequate size and sufficiently staffed to perform the assignment. The proposed staffing of the team must be identified. The selected team shall provide plans, design, environmental and other data in an Intergraph Digital CADD-compatible format. The DBE requirement for this project will be 18% percent. A letter of interest, together with general information on the firm and proposed subconsultants, the firm's brochure, current Federal GAS Forms 254 and 255, experience of the firm and a resume of key personnel should be addressed to Peter S. Szabo Connecticut Department of Transp-ortation, 2900 Berlin Turnpike, Newington, CT 06131. All interested firms must submit a detailed statement indicating the organizational structure under which the firm proposes to conduct business. Proposed subconsultants should be clearly identified. The relationship to any "parent" firm or subsidiary firm, with any of the parties concerned, must be clearly defined. Four copies of this submittal must be included. The selected firm will be required to have a Department-approved audit and affirmative action plan and current corporate registration with the Secretary of State (partnership excluded). Proof of Professional Liability Insurance Coverage will be required prior to the start of the negotiation process.The firm shall provide a statement of any and all contracts with either the Department of Transportation or the Department of Administrative Services which are currently being performed, and a statement as to whether the design professional consultant, or firm, performed services under any name other than the one appearing in the response. Personnel in responsible charge of the work will be required to possess and maintain a valid license for the practice of landscape architecture and professional engineering in the State of Connecticut. All letters of interest must be postmarked by the U.S. Post Office (if mailed) or arrive (if hand delivered) no later than 4:30 p.m. on February 14, 1994. Responses hand carried or postmarked after this date will not be considered. An Equal Opportunity Employer.

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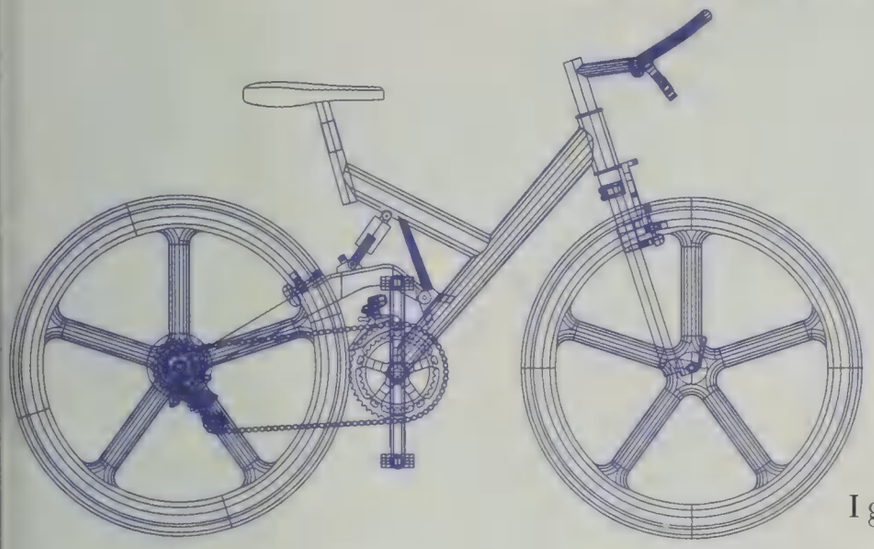
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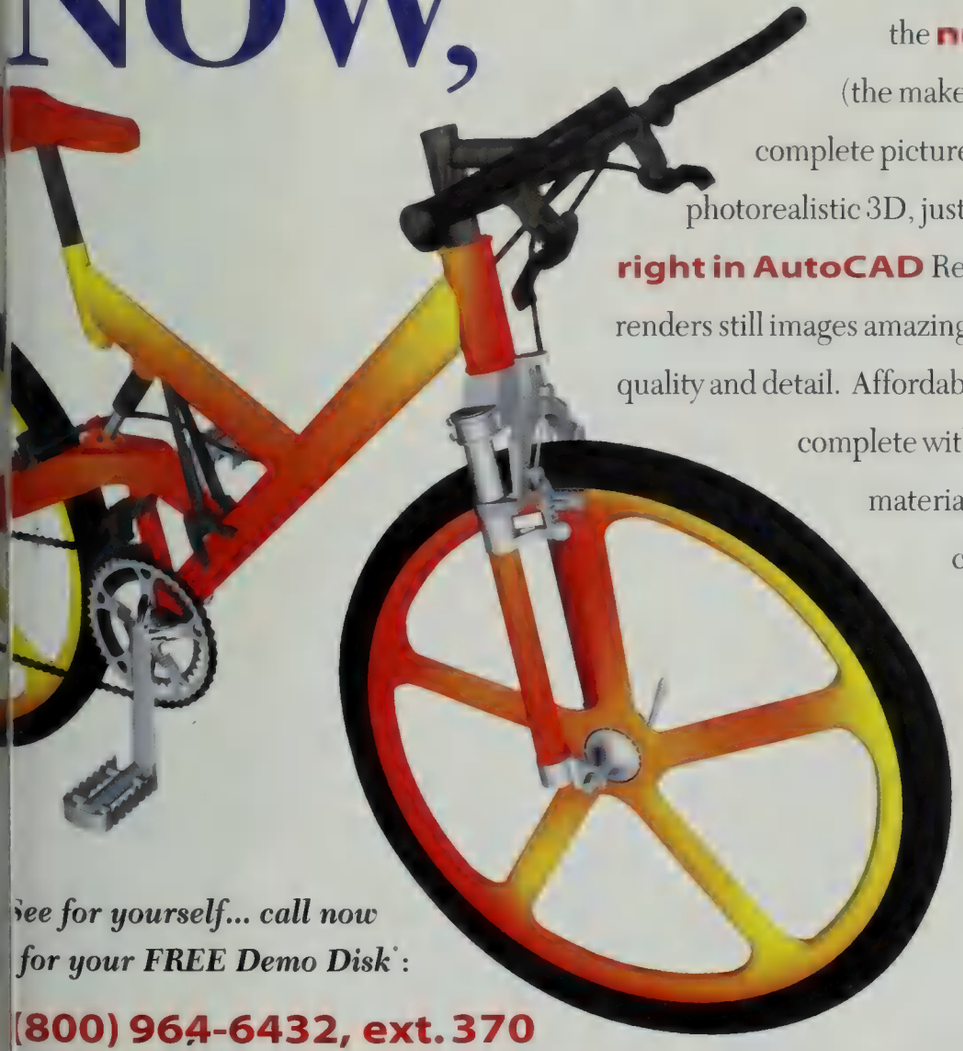




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